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ABSTRACT

The document is a continuation of CE000452. Five monographic chapters are presented there. The concluding five monographic chapters of this publication concern the health care practitioner as instructor by Hilliard Jason; an approach to a rational scheme for financing continuing education for health manpower by Leon M. Lessinger; the use of analytical techniques to determine health manpower requirements for educational planning by Ann Lewis; social regulation of health manpower by Ruth Roemer; and groping toward a national policy involving regional efforts for improved health service delivery. (MS)

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Book I

Vol. II

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Fostering the Growing Need to Learn:

Designs for the Continuing Education of Health Manpower

Book I
Vol. II

The Health-Care Practitioner as Instructor

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I. INTRODUCTION

This chapter is devoted to the general issue of improving the continuing educational growth of health-care practitioners. Its particular focus is on the responsibilities of health-care practitioners as instructors of others, the various ways they can fulfill these responsibilities, and the benefits to be derived from their instructing.

A well accepted, but surprisingly ignored principle is that one of the most effective ways to pursue one's own learning is to engage in the instruction of others. This principle has been enunciated by several authors.[1,26,32,60,64] One purpose of this chapter will be to examine the principle, to explore its relevance to the health professions, and to provide illustrations of how it might operate in actual practice.

Another major purpose of this chapter will be to explore the specific instructional responsibilities that can, indeed should, be assumed by health-care practitioners. This will involve a look at: who should be the students of health practitioners, the settings in which such instruction should occur, the instructional methods and techniques best adapted to the needs of these students and these settings, and ways in which practitioners might determine the effectiveness of their efforts as instructors.

A final purpose will be to clarify the competencies that practitioners should have to function effectively as instructors and the steps that might be taken to elevate the practitioners' level of performance in these areas. This will include an elaboration of many of the instructional concepts that would-be practitioner-teachers should acquire, a review of the strategies that are now in use in the few existing programs that have recently begun to appear, and some projections of possible practitioner-instructor development programs that do not yet exist but would be desirable.

The key to an understanding of this chapter is a comprehension of the concept of "instruction" as used here. Commonly instruction is thought of in an unnecessarily limited way: As though it were typified by the lecture situation in which the instructor is the dominant figure, the student is in a passive role and the preoccupation is with the transfer of specific information

from teacher to student. This is a distortion, rather than a description, of the instructional process as used in this document and as it has come to be so regarded by the latest thinkers in the educational domain.

Instruction should be thought of less in terms of the specific actions taken by teachers and more in terms of the outcomes expected – in terms of the competencies to be acquired by the students. The focus should not be on the teacher's presentation of a lecture or conduct of a seminar or organization of a laboratory, or whatever; it should be on such outcomes as: (1) the syndromes that the students newly recognize or (2) the problems they can newly solve or (3) the research techniques that they have to be able to perform or (4) the skills they have developed at establishing effective relationships with patients, or whatever other new capacity they have been helped to acquire. The key issue in instruction is that it effects changes in students. If the students are not somehow more competent than they were prior to instruction, unless there are extenuating circumstances, the effort expended in the instructional activity simply cannot be justified.

Instruction can be thought of as an interventional act, or set of acts, much like medical care. The student can be thought of as "suffering" from a group of "deficiency diseases"; he or she is missing some capabilities for which the instruction is intended to provide "corrective therapy." As in the provision of effective medical care, effective instruction requires that specific conditions be met. It is simply not possible consistently to provide quality instruction without having undertaken the following steps: (1) The competencies the students are expected to have or to acquire must be defined; (2) a "diagnostic determination" of the students' performance level prior to instruction must be undertaken to define the nature and extent of the students' existing capacities and deficiencies; (3) a set of plans must be formulated that can reasonably be expected to provide the students with those abilities they do not yet have; and (4) methods must be available or be designed for determining when the students have successfully reached the intended end points of instruction. These components of instructional design will be elaborated upon in Section III below.

To illustrate these steps, for now, let us examine an over-simplified situation: If our intention is that a newly identified diabetic patient should have the competence to administer his own insulin by injection, then we must provide each of the following: a clear specification of the capacities he needs (such as use of a syringe, determination of appropriate dosage and willingness and ability to administer an injection to himself), a method for determining the extent to which he can or cannot now do these various required tasks, a set of procedures for instruction him in those things he cannot or will not now do, and an approach for determining when he is ready to be turned loose on his own. This paradigm can apply to instruction ranging from something as simple as that required to help a new mother learn to hold her baby properly for feeding to the inordinately complex instruction involved in helping

medical or nursing students learn to relate effectively to hostile patients. Both of these examples in fact are illustrations of specific instructional activities that would be entirely reasonable as responsibilities for health practitioners to carry out, or to supervise. Both also illustrate the primary student groups (patients and health-professions students) and the range of instructional complexity appropriate for health-care practitioners. These will be elaborated upon in the sections below.

II. THE PREMISE, AND THE PRESENT SITUATION

The basic premise of this chapter is that health-care practitioners *should* serve as instructors – that it would be good for them and good for those they serve. If this premise is valid, then practitioners should be given the preparation and support they require to fulfill these responsibilities. Before examining the many implications of that conclusion, let us look more closely at the basic premise itself.

The two major "student" groups at issue are: (1) patients and (2) actual students of the health professions, both predegree and postdegree. Virtually no one disputes the assertion that patients need instruction as part of receiving quality patient care and that students need instruction in their development. There is less than unanimity, however, regarding who should provide this instruction and under what circumstances.

There is growing recognition that far more than effective preventive medicine is involved in patient education – that this in fact may be a major factor in solving the problem of the present disparity between demand and resources in the health-care field. Through patient education unnecessary demands upon the health-care system may be reduced and appropriate patient self-help may be increased – both far more promising methods for providing a rapid and effective response to the present crisis than the effort to increase the number of health professionals. Patient education can begin having an effect almost immediately and could make a substantial difference. Increasing the number of health professionals takes years to effect and even a small difference in their number is inordinately expensive to achieve, while exerting little impact on the total problem.

Yet at present medical and dental students are given no preparation for serving as instructors of patients or even for valuing patient education so that they might support the efforts of the nurses, social workers, technicians or other personnel with whom they might collaborate, or who may work under their supervision, in the process of instruction patients. There is in addition wide variability in the extent to which health practitioners, other than physicians and dentists, are prepared for the tasks of providing effective patient education. The absence of disagreement about the importance of patient education is simply not backed up at present by those activities necessary for a substantial response to the need that exists.

Similarly barely a minimal effort is now being expended toward preparing practitioners as instructors of students, despite the growing acceptance of the logic behind the arguments for their involvement. Only a few students at even fewer schools are given the opportunity to serve as, or to learn about being, teachers during their student days. In contrast, they *are* given experiences in a variety of other areas, solely on the premise that they may want to consider this or that field or enter it in the future. Yet many more health professions students do, and certainly should, become teachers, at least on a part-time basis, than become specialists in most of the field to which they are exposed.

The absence of preparation of practitioners for teaching during their years as students is not generally compensated for later. While a small number of health professionals do serve as teachers while pursuing postdegree studies (such as residencies, postdoctoral fellowships and graduate degree programs), these experiences are almost all without any preparation or guidance, so they often become circumstances where bad habits are formed rather than opportunities for fostering and developing new skills. With some rare exceptions, which have begun to appear in recent years, the practitioner has not only not been prepared to serve as an instructor, but also he or she cannot find assistance in acquiring or refining instructional skills later when out in practice.

Even those schools that call on them to serve as teachers in their programs typically give them no help in approaching their unfamiliar assignments. Still worse, the schools will generally not help them understand the larger program into which their contribution is supposed to fit, or even the particular purposes their efforts are supposed to serve. The physician or dentist who is asked to appear in the university clinic once a week to supervise a small group of students, or to accept a student in his office for two weeks, with no further preparation than that, is doubly compromised: He is doing a job for which he is unprepared, to fulfill purposes of which he is unaware. No wonder that many practitioners have been dissatisfied with teaching and their contributions have often not been well regarded by students or by the university faculty.

Clearly the present situation leaves much to be desired. If practitioners are to serve effectively as instructors of patients and of students, a variety of things must be done. Before turning to what must be done, let us examine more closely the primary assumption lying behind the premise at issue: the assertion that the practitioners themselves stand to profit from their serving as teachers, over and above the contributions they can make to the patients and students they serve.

That becoming a teacher is an excellent way to learn is generally accepted. Many people have personally experienced the phenomenon in actual operation. Like many issues regarded as self-evident, however, the connection is not quite as automatic or as predictable as many think. The effect is one that *can* be, and often is, achieved, but it is well short of being a certainty.

Identifiable conditions must be met if the probability of achieving the desired outcome is to be maximized.

The outcome of learning occurring for the teacher himself is directly dependent upon the extent to which he engages in various activities or fulfills the demands required for providing quality instruction. In a sense the teacher will profit from his own efforts to the same extent that his students do. The teacher who does not plan systematically, who instructs in a routinized fashion and who fails to keep up to date in the areas he is to teach is of little value to his students or to himself.

Being an effective teacher depends on the pursuit of several activities ultimately beneficial to both the students and the instructor. The process of preparing oneself for offering instruction should include a critical review of the area or field in question, with a particular view toward identifying what is new and separating the important from the less important. While doing these very things is the task of effective self-learning, few people take the initiative to engage in these activities systematically and regularly, without the prod of an outside stimulus. For those who take the initiative, serving as an instructor is easily one of the most satisfying and most effective challenges.

Quality teaching, as will be emphasized in the next section, should include an openness to, indeed a continuous invitation for, questions and challenges from one's students. While this is necessary as a mechanism for good teaching – for determining the students' level and rate of progress, as well as for assuring that one's teaching is adapted to their needs – a major effect of such interaction is its direct value to the instructor. This is probably the finest approach available for identifying weaknesses in the teacher's arguments and deficiencies in his preparation, understanding, or depth of comprehension; in sum, it is a magnificent stimulus for keeping up to date, open to change, and generally alert. Without such a stimulus available on a continuing basis, few people sustain their level of quality quite as well as they might.

While our present activities in preparing or using health-care practitioners as instructors of patients or students is rather minimal, the desirability of substantial increases in these activities seems incontestable. The remainder of this chapter will examine the skills that practitioners will need, how these skills might best be utilized and how they might be acquired.

III. THE INSTRUCTIONAL PROCESS*

A. General Issues of Instructional Design

If the premise of this chapter is to be fulfilled – if most health-care practitioners are to serve in some capacity as instructors – they must become equipped to undertake those responsibilities involved in being instructors.

*Throughout this section the examples used derive primarily from the setting of student-instruction rather than patient-instruction. This is done only for ease of communication, since the situations described are more generally familiar. In subsequent sections these examples will be translated into principles applicable to both instructional settings.

Experience has confirmed that merely wanting to be a teacher is not necessarily enough. We have centuries of illustrations that, except for the extraordinary person, the best of good intentions, if bolstered only by intuition, can lead to indifferent or ineffective outcomes.

The typical instructional circumstance is one where an experienced person is trying to be helpful to the inexperienced, the informed to the uninformed. The inadequacy of intuition under these circumstances is best illustrated by the nearly universal tendency of teachers who are seeking to introduce students to a new field to begin with an historical review of the development of that field. From the intuitive perspective of the instructor, the expert, to start by examining how his field came to be what it now is, seems perfectly appropriate. He is intimately familiar with the present state of affairs so that reflecting on its origins appears to be the natural thing to do. The students, however, have no idea what the present situation is so they are somewhat less than enthusiastic about discovering how it got to be that way.

Students have repeatedly exhibited an indifference to historical reviews as introductions and their instructors have consistently concluded that this reaction merely confirmed their view that "present-day" students were insufferably shallow. While this particular consequence of the inadequacy of intuition as the basis for instructional design is not necessarily far-reaching, many other outcomes are.

One of the most serious errors of intuition has been the characteristic curricular approach of this century, which infers that if the biological sciences are to be "basic" to the thinking of health professionals, then they should be "primary" in their learning experiences. Since the early 1900's, nearly all medical, dental and nursing students the world over have been expected to learn the so-called "basic sciences" before they had developed any notion of why this material should be learned or in what way it might be important. An explicit strategy of neglect could hardly have been more effective in getting generations of practitioners to become antagonistic toward, and consequently to ignore, these sciences in their subsequent careers.

Only now, after untold educational damage has been done, is intuition beginning to be replaced by critical inquiry and research, and are students starting to be provided with instructional experiences that closely integrate the biological sciences with clinical experiences. In this way, it is now recognized, students might learn to view basic science and clinical experiences as genuinely complementary, rather than one as an obstacle course on the way to the other.

If any further documentation of the effects of programs designed by unprepared teachers is necessary, consider the instructional disaster that has made the present volume necessary. In their natural preoccupation with their own fields and their consequent neglect of other areas, teachers in the health professions have made little, if any, contribution to one of the most basic

requirements of their students: the development of a commitment toward, and skills for, effective continuing self-education.

Individuals need two specific sets of skills if they are to be competent self-learners; (1) the capacity for, and openness to, critical and accurate self-evaluation, so they might continuously determine those areas where they have deficiencies that need correction and (2) the capacity for independent self-instruction so they might undertake the correctional activities that they had determined desirable. These skills have not generally been acquired by health practitioners primarily because instructional programs as typically designed give virtually no attention to these skills; indeed, much about conventional health-professions educational programs weighs against the development of these very skills.

Students have generally been given a totally preprogrammed set of activities when what they needed was the challenge of having to develop the rationale for, and the design of, the program most suited to their needs. They have been exclusively evaluated by their teachers and other external sources, usually with methods they didn't understand, when their need was for opportunities to gain the experience of designing and applying their own evaluation methods. In sum, characteristically they have been made passive recipients of externally imposed evaluation and instruction – the reverse of the strategy that should be used if the goal is to develop people skilled in self-evaluation.

The implication of the entire discussion so far is that the fundamental issue in the provision of quality educational programs is the soundness of the overall design. The formulation of reasonable goals and the creation of experiences consistent with those goals are the key steps in educational planning, and they require the mobilization of more than goodwill and intuition; they require the availability of skilled, informed, teachers. This section will specify the skills that practitioners should have if they are to serve effectively as instructors. The specific skills they need will become evident, by derivation, from an elaboration of the steps that must be taken in designing, providing, and evaluating instruction.

B. An Overview of Instruction

As has been previously emphasized, the intent of instruction is to bring about changes in students. Put another way, its purpose is to help students get to be able to do things they couldn't do before – whether it is solving a diagnostic problem, interpreting a research report, suturing a laceration, sympathetically informing a woman that her child has just died, or whatever. If they can already do it, the instruction is unnecessary. This generality is often misunderstood. The question is frequently asked: What's this emphasis on "doing"? Don't we often just want students to *know* certain things, or to *believe* certain things, or to *appreciate* certain things? The problem with these

questions becomes clear when you face the subsequent question: How do you, the teacher, determine that the students actually know, or appreciate, or believe those things? The answer is that you determine it by what they *do*.

The only way we have of confirming that someone knows something is by his demonstrating his possession of that knowledge through the questions he can answer, the judgments he can render, the problems he can solve, or some other action. In other words, by what they demonstrably can *do!* The central issue in professional education is that students are in fact being prepared for a career of *doing* a variety of particular things. What they need is to learn how to do those very things. Those elements of information that they are said to need to *know*, for example, are not being learned for the simple sake of knowing; they are worth learning in so far as they are necessary for, or elevate the quality of, those things they will do: the data-gathering or problem-solving or research, or other activity in which they will engage. "Knowing" is vitally important but not an end in itself.

The first and basic step in the design of instruction, then, is the determination of the purposes – the specific outcomes to be achieved – of the instruction to be offered. This involves a process of: (1) identifying the demands of the career the student(s) will pursue, (2) defining the competencies required to meet these demands (perform these tasks), and (3) translating these necessary competencies into explicit program goals. By derivation, a primary competency required of instructors is the capacity to define appropriate goals and objectives for the instructional units for which they are responsible. The procedures and approaches that need to be followed in completing this step in instructional development are outlined below.

In Figure 1 the instructional step described above is shown in its interrelationship with each of the other steps to be discussed below. (It may prove useful to refer to this Figure in conjunction with the reading of the rest of this section.)

The second step in instruction is the selection of those strategies most appropriate for achieving the goals that have been set. Two primary considerations are involved. First, the characteristics of the instructional techniques themselves must be rationally related to the outcomes expected in the students. Clearly we would not select the lecture technique as the primary strategy for helping students learn to manage surgical emergencies, nor would we use seminar discussions if the intended outcome was effective patient interviewing skills. Second, the instructional method must be at a level suited to the students who are to be served. There is obviously no point in presenting an introductory series on elementary physiology to a group of students who already have graduate degrees in physiology, any more than there is point in having students go on unsupervised home visits as their first experience in any of the schools of the health professions. The actual process of selecting or designing instruction so that it is adapted to the requirements of the students demands a far finer degree of assessment than implied by

these blatantly obvious examples of mismatch, which were selected just to make the point.

The instructor competencies required for this step also sort into two parts. First, effective teachers need to have a substantial familiarity with the range of available instructional strategies, together with their respective advantages and disadvantages so they can make an informed selection according to the requirements of the goals they have defined. Second, the process of matching instructional level to student level requires the ability accurately to assess the

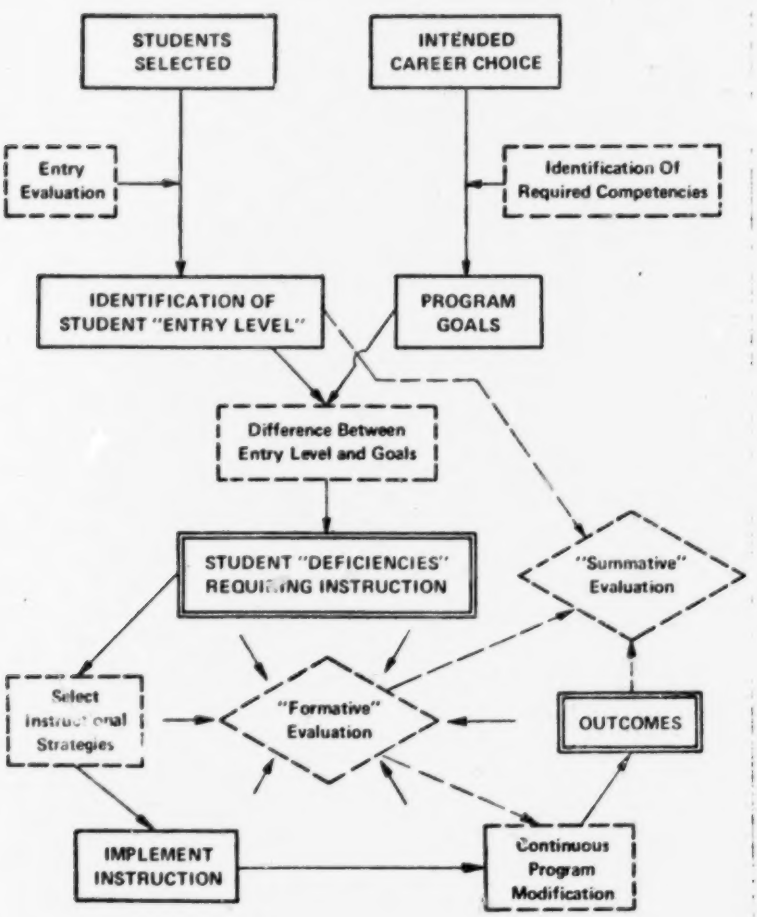

FIGURE 1
The Instructional Process

relevant student competencies. This demands a set of evaluation skills, which is substantially the same as the ability to evaluate the outcomes of instruction (to be discussed further below).

The third step in the instructional process is the actual conduct of the instruction itself. The conduct demands still another subset of skills. It is one thing to have correctly reasoned that the proper approach to achieving the goal of helping a student learn to perform a thorough neurological exam, given his current level of experience, is the direct supervision of his actual work with patients. It is quite another thing to be effective in providing that instructional supervision. Experience has amply demonstrated this demands a set of interpersonal and communications skills that are not necessarily automatically available to all who choose to proclaim themselves as teachers. And, of course, different skills are demanded by different instructional approaches. An important consideration in seeking to help instructors expand their repertory of different instructional skills is the desire to avoid the all-too-common situation of teachers choosing to teach in a particular way, not because it is appropriate to the goals or to the students, but because that way makes them feel most comfortable: whether because they were most frequently exposed to it as students, or they feel most in control of it as teachers, or it requires least preparation.

The fourth and final step in this simplified analysis of the process of instruction is the determination of the actual effects of the instruction that has been offered. Several considerations enter into such a determination. For any but the briefest instruction, measures of intermediate effects during the instructional sequence are necessary. The students need information on the extent to which they are progressing appropriately, and the instructor should be depending on continuous evaluative information to make adjustments in the focus, pace, and even style of instruction according to its measured impact on the students, as emphasized by Abrahamson,[1] Fleisher[31] and many others. One's initial instructional plans are quite unlikely to be exactly right for all students throughout the entire program. The information that can be derived from tests given at the end of a program, or even half-way through, is generally too late. "In-flight corrections" should be made the moment they are necessary, or serious inefficiencies and even negative learning effects can result.

This is to suggest, not that final evaluations are unnecessary, but that they serve a different purpose. The distinction between the two is emphasized by the emergence of separate technical terms as labels for different forms of evaluation. "Formative" evaluation refers to the ongoing, intermediate evaluations that are vital in helping with the continuous process of shaping or "forming" both the program and the students. "Summative" evaluation, as the word implies, is a final summation of all available evidence, permitting, one hopes, some valid judgments to be made about the program outcomes: the degree to which the students progressed from their entry level to their

exit level, the extent to which the students did in fact achieve the intended goals, and the actual contribution of the instruction in facilitating this achievement. While some forms of final examination are usually appropriate contributions to summative judgments, the available information from the formative evaluations and from the assessment undertaken at the outset (to determine student entry level) are vital components of any conclusions to be drawn. Student performance at the end of instruction cannot be interpreted for purposes of program or student evaluation, without entry and progress information. Without these data one can never be sure whether the students have actually gained as a consequence of the instructional effort, or whether those competencies now present may actually have been acquired (or even exceeded) prior to or at some earlier point in the program.

Again, by derivation, one can identify a variety of competencies required of teachers if this phase of instruction is to be well performed. At the very least, a moderate familiarity with the range of evaluation techniques is necessary if measures are to be selected that accurately reflect the outcomes intended. One can't assess interviewing skill validly with a multiple-choice test, any more than one should expect an oral quiz to provide useful information about a student's capacity to write a good case history. Knowing which form of evaluation to use in a particular situation must be complemented by the ability to design or find appropriate evaluation approaches, and to interpret the data emerging from their use. Most important of all is a comprehension of the key issues in, and questions to be answered by, instructional evaluation. These will be further elaborated upon below, in Section III F.

C. Formulating Goals and Objectives

Imagine the following situation. You are responsible for designing an entirely new program of instruction for a group of students and your only constraint is time. The time you have is less than would be required to have the students learn all you would like to teach, whatever that happens to be.

Since you don't have time for everything, then obviously some portion will be included and another portion will be excluded. How do you decide what to include and what to omit? How do you get your colleagues on the faculty to agree with these decisions? Is it important that they do? Well, you recognize that, if they don't agree, knowingly or unknowingly you and they may be working at cross-purposes and you could be stuck with an inefficient program. What part can, or should, students play in these decisions? And how should the results of these decisions be formulated so that they can be communicated to others?

Should the program be concerned about such nondisciplinary matters as the students' ability to take initiative in pursuing their own learning, or evaluating their own capacities and limitations, or following through on

responsibilities? Aren't these competencies of fundamental importance to being an effective health professional, even if they aren't encompassed by our used disciplinary organization? If so, whose task is it to help assure that they are fostered and developed?

The process of answering these questions is the process of formulating the goals and objectives for an instructional program. Offering an instructional program without first asking and answering them is about equivalent to setting out on a long vacation trip without ever considering where you are intending to go, or which places you want to see or skip along the way. Left to pure chance, momentary impulse or unexamined intuition – as instruction often is – the trip would run a high risk of missing some of the most attractive highlights, squandering precious time and resources on unnecessary or even undesirable experiences, and ending up somewhere you really didn't want to be. This is not to imply that you might not have had some glorious, unexpected, spontaneous experiences along the way. But without some planning, you simply cannot count on getting to your destination.

The point is this: If your genuine wish is for spontaneity, that's just fine; you simply have to determine in advance that such is your priority choice, so that the necessary time, flexibility, and opportunity are provided to make it possible; but, conversely, if you have some specific places that you want to be sure to see, then you must plan accordingly, or you are likely to miss them.

Similarly in instruction anything can be planned for, ranging from the narrow expectation that all students will acquire the highly specific skill of accurately doing a red-blood-cell count to the highly amorphous intention that those who choose to will be provided the resources to undertake a research study that will lead to a publishable paper. The issue remains: Whatever one's intentions are, they should be formulated in advance, if success is to be likely. Choices do have to be made. Whenever some materials or experiences are included in an instructional unit, others are omitted. Whenever questions are asked on specific topics in an evaluation, other areas go unexamined. The only way to be sure that the instruction and evaluation do deal with the highest priority issues is to have defined in advance what the priorities in fact are. The important point is: We *always* have objectives, whether we have managed to make them explicit or not. The materials we include and exclude in our instruction and examinations define our objectives. The risk is not having overtly defined them in advance is that things we really care about may get omitted and things trivial or even inappropriate can get to be emphasized.

Our fond hopes notwithstanding, educational programs, like unplanned travel, can have negative outcomes. Students who have experiences that, for example, cause them to become disinterested in or antagonistic toward a specific discipline, or the basic sciences in general, have derived seriously negative consequences from their education. Any ability such students may

have to provide the correct responses on information-oriented exams at the end of a course is canceled by the overriding long-range damaging effects of the negative attitudes they have developed.

There is simply no escape from, or short cut in, the tasks of defining the intentions of an instructional program. These tasks may require a fair amount of effort but that is unavoidable if quality is to be achieved.

As indicated in Figure 1, the goals of an instructional program should derive from an analysis of the requirements of the career for which the students are preparing. Clearly if they are to be social workers, for example, we wouldn't include the goal: "All students will demonstrate an ability to perform manual skills with considerable dexterity," but we would certainly include it for prospective dentists. An actual investigation of the competencies required for effective performance in specific careers is obviously an important, although generally neglected, source of guidance in formulating instructional goals. It is not enough, however. Merely to prepare students to do well what practitioners now do is insufficient. That would render them rapidly obsolete. The instructional goals suggested by current practice should be modified according to the best available judgments regarding the character, and consequent requirements, of practice in the future – in the two or three decades ahead when current students will achieve their career peaks. Still further, there may be problems in the current approaches to practice that instruction should manage to avoid in the next generation of practitioners, as, for example, has been suggested by de Lodzia.[20]

As an illustration, an analysis of contemporary practice in many communities would reveal that little if any effort is invested in systematic self- and peer-evaluation. This finding might seem to suggest that these skills do not belong among the list of appropriate instructional goals for today's students. Clearly that would be a serious short-sighted error. Both the changing scene in the health professions and our own judgment of the requirements for a quality of health care indicate that an openness to, and skill in, self- and peer-evaluation are rapidly becoming important requirements among the competencies of health-care professionals, and instruction in these areas would be appropriate and desirable.

The formulation of goals and the setting of instructional priorities are patently not tasks to be independently undertaken by individual instructors in an educational program. These are tasks to which all instructors should jointly make a contribution.

Abundant experience confirms that teachers don't effectively pursue someone else's goals. They have to comprehend fully the intention of a set of goals and support the judgment as to their relative importance in order to realize them. Otherwise, perhaps unwittingly, they end up seeking to fulfill other goals, which may even be opposed to those intended. The way to avoid such an outcome is to have all teachers in a program participate in the formulation of the goals and the refinement of the specific objectives that

derive from those goals. This includes the community practitioners who are serving as part-time teachers.

Without this participation one finds such unfortunate events as the situation in which one group of faculty, in pursuit of the goal of fostering independence and initiative in the students, decides independently to eliminate all grades and examinations, depending instead on student self-evaluation and direct observation of performance by the faculty. If this goal is not communicated to and not supported by other instructors and they continue to impose exams and emphasize grades, the students find themselves in a destructive bind. They must give primary or even exclusive attention to the activities on which they will be formally examined, for fear of failing, despite the importance or attraction of the course that has been independently removed from "direct competition" through elimination of the grading procedure. This could have been avoided by general faculty sharing of goals.

A great deal has been written in recent years regarding the importance of formulating not only general goals, but also highly specific instructional objectives.[10,40,53,57,62] While there have been some contrary views from a few sources,[27,25] the predominant emphasis has been on the need for "behavioral objectives": statements of the abilities that students are expected to demonstrate as the result of instruction, stated as descriptions of the actual behaviors that the students will display.

Unfortunately the purpose and method of such specification have often been misunderstood. The important issue is the need for objectives that describe *observable* and *measurable* performance, not abstract or hypothetical states of mind that one hopes the student might have achieved. An objective should describe an overt competency that is appropriate for a health professional, or a prior level of achievement that enables the subsequent development of such competencies.

For example, it is meaningful to have an objective stating, "The students will be able to gather sufficient data from any patient they interview to effectively describe that patient's general health status." This describes, or suggests, a specific set of behaviors. It is not meaningful, however, to have an objective which states, "Each student will appreciate the importance of a health-status exam." No behavior is suggested and, as a consequence, the fulfillment of this objective is neither observable nor measurable. The question that teachers must ask themselves is, "How will I know that a student *appreciates* the importance of the health-status exam?" Our concern as instructors is with the behavior toward which such an appreciation will lead: the observable acts involved in actually collecting and recording health-status data on patients – whether the student is being examined or not, or whether on a particular clinical service or not. Mager[53] has provided helpful guidance for teachers who are interested in examining more closely the process of converting general goals to specific, useful objectives.

It should be understood that those specific objectives that get to be written are simply an expression of the general intentions or purposes for our overall instructional effort. In medical school, for example, our overall intention is to produce general physicians who are at least modestly competent. A description of those tasks they should be able to perform, such as the steps they should take in problem-solving,[23, 28] would be one set of "terminal" objectives for the medical school's total program. Another set of objectives might derive from the expectation regarding the health-status examination, noted above. Most terminal objectives are sufficiently complex so that they cannot be fully achieved in a single instructional step. Instead, a sequential learning experience should be devised in which a set of interrelated steps, each building on the previous one, is provided. Among the many necessary steps along the way to achieving the objective of gathering data for an effective health status exam are: (1) the ability to conduct a systematic interview, (2) a knowledge of disease processes, and (3) the ability to perform a systematic physical exam. Each of these is an "enabling" objective in the realization of the desired terminal objective. As is sometimes true with other enabling objectives, these are themselves legitimate terminal objectives in a medical school curriculum. Problems arise when items that are exclusively enabling objectives begin to be treated as though they were terminal objectives. This confusion is particularly true for much of the content of the preclinical sciences, but it is a trap into which we can fall when fashioning parts of a clinical curriculum. Clearly, we have formulated a *behavioral* objective when we have stated, "The students will be able to describe and interrelate the processes of glycolysis and gluconeogenesis." That this describes a set of behaviors is not enough. We must not lose sight of the fact that this is an enabling, not a terminal objective. It is meant to be facilitative to the students in their comprehension of mechanisms that are operative in real patients with real medical problems. If their teachers lose sight of this interrelationship and the students, as a consequence, are led to believe that their description of these biochemical processes is an end in itself, there is a serious risk that they will reject these concepts as just so much more esoterica, of peculiar interest to biochemists but irrelevant to physicians. The terminal objective(s) toward which this enabling objective relates must have been clearly formulated in advance and must remain in the forefront of the thinking of both the teachers and students as they deal with this material, if the negative consequences are to be avoided.

Objectives can be written more easily in some areas than in others. The assertion can be made, however, that objectives can and indeed must be specified for any area to be taught. Agreed, there are complex areas for which it is difficult or unreasonable to try to specify all the possible performances that are meant to derive from instruction. Much more reasonable under such circumstances is to focus on the specification of priorities among groups of objectives and have the specific details emerge in the course of instruction

itself. To illustrate: In developing objectives in the area of the doctor-patient relationship, it may be satisfactory to specify that students will, for example, be helped to develop a consistent pattern of avoiding any remarks or behavior which may be censurious of or constraining to the patient. A few illustrations would then help make the point but it would not be reasonable to try and develop the compendium necessary to define every possible constraining or censuring behavior, or, the reverse, all possible facilitating behaviors.

In writing actual objectives, it is best to begin at quite a general rather than a specific level. At the general level priorities can best be set. Among the highest level priorities in a school of the health professions might be such goals as assuring that all students are: effective at gathering data from patients; capable of and committed to pursuing their own continuing education; open to and skilled at collecting evaluative information on their own performance; and able to establish emphathic, trust-based relationships with patients. Given this sort of general goals, plus any others that the faculty would agree deserve top priority, all subsequent goals and specific objectives should be evaluated in terms of their extent of support for, or risk of detraction from these goals. Clearly, specific objectives can be written only after these priority decisions have been made. The writing of the specific objectives themselves, while generally done by faculty, can be contributed to by the students, as described by Quarton.[74]

To be of maximum value, objectives whenever possible should meet the following criteria:

(1) *Clarity:* The statements should be sufficiently clear and communicable so that a person moderately familiar with the instructional area could independently describe in some detail the student performance expected on the basis of reading the objective. Note: An objective may be sufficiently clear and appropriately written and yet not be fully communicable to a beginning student. Often one must have some comprehension of the field in question (in other words, to have partially achieved the objective itself) before the intent of the objective is fully understood.

(2) *Assessability:* The behaviors expected should be described with sufficient specificity to make clear the possibility of and approach to evaluating student performance in that area. The level of acceptable performance should be specified so that there is no ambiguity about the requirements for satisfactory completion of a unit or sequence.

(3) *Relevance:* Health-care practitioners from areas other than the one in which the objectives are being formulated should agree to the appropriateness of each objective in terms of its relevance to health care and practice.

The following are some sample objectives that would be considered appropriate for the two areas of concern of this chapter:

(a) *Student Education:*

(i) Each student will be able to measure the brachial artery blood pressure to an accuracy within 5 percent of that determined by their instructor, using an office sphygmomonometer.

(ii) All students will demonstrate their ability to ask questions that are appropriately adapted to the vocabulary level of the patient they are interviewing, as determined by the patient's comfort and comprehension.

(iii) The students will be committed to pursuing their own education, as demonstrated by their independently learning about problems presented by their patients.

(b) *Patient Education:*

(i) Any newly identified diabetic patient who requires insulin by injection should have, or be helped to acquire, the technical skill to administer his or her own medication.

(ii) Any diabetic patient requiring insulin who can technically administer his own medication should be, or should be provided the help to become, comfortable with the task of daily self-injection.

(iii) Parents of children about to undergo their first hospitalization should understand the reasons for the hospitalization, the procedures that will be undertaken, and the likely possible outcomes.

Note that each of these examples specifies what the learner is expected to be able to do, either on his own or as a result of instruction. They do *not* indicate what the instructor is supposed to do. The instructor's responsibilities are determined not by the goals alone but also by the interraction of the goals and the students' (patients') capacities prior to instruction (Figure 1). A nurse who is expert at administering subcutaneous injections and who becomes diabetic and requires insulin has already fulfilled the instructional objective regarding skill at injections, and instruction in this area for her is unnecessary. She may, however, still need help in the area of becoming comfortable with the new task of injecting herself. The next step in the instructional process, then, is the determination of the instructional strategies most appropriate for a given situation. That is the topic of the next section.

D. Selecting Strategies of Instruction

Instruction is a complex process involving many elements each of which can contribute to or detract from the quality of student learning. The planning of instruction should involve the selection of those elements most appropriate for: (1) the student(s) involved, (2) the objectives to be achieved, and (3) the resources available. The sorting of the various available elements into a combination optimally suited to these three requirements is the process of selecting or designing an instructional strategy.

For our focus in this chapter we will restrict consideration to three general factors and nine elements of instruction (see FIGURE 2).

SETTINGS	DIMENSIONS	TACTICS
Classroom	Guidance	Telling
Laboratory	Activity	Showing
Clinic	Reality	Critiquing

FIGURE 2
The Elements of Instructional Strategies

Until recently we have tended to think of instruction in a rather restricted fashion. We have referred to "lectures" or "seminars" or "laboratories" or "clinics," when, in fact, these terms tend to describe settings of instruction more than they describe the process that occurs. In practice the ways any one of these supposed forms of instruction are actually implemented differ widely.[45,46] Some "lectures" are nonstop, didactic monologues and others are richly illustrated with a variety of demonstrations, and still others are characterized more by question-answer exchange than by formal presentation. Similarly "seminars" span the spectrum from the active, small-group, multilogue to the uninterrupted formal presentation.

While terms like "lecture" and "seminar" have lost much of their meaning, a basic instructional decision regarding the *setting* to be used remains. The "classroom" setting is meant to encompass a wide range of possibilities, having in common the fact that verbal exchange is the primary vehicle for learning. The source of instruction is either a teacher or the teacher's proxy, in the form of instructional materials used for self-study. The number of students can range from one to many hundreds. The "classroom" is the dominant setting for university-based education and is the primary setting for the instruction of patients.

The "laboratory" setting is almost exclusively a university-based modality, usually involving the use of procedures, techniques and instrumentation as the major vehicles for learning. This setting has little if any relevance to the instructional activities under consideration in this chapter.

The "clinic" setting implies instruction designed to be based upon the process of providing patient care. It may be at the bedside, in an outpatient clinic, the office of a health-care practitioner, in a patient's home, or wherever care might be provided. This is the primary setting for student instruction by practitioners.

In any one of the three settings noted above there can be a wide variety of different instructional approaches. Several of the variables that can substantially affect the quality of these approaches are listed under "Dimensions" and "Tactics" in Figure 2. All are features amenable to control by the individual instructor, and selection among them should be part of instructional planning.

Each of the "Dimensions" can be viewed as a continuum of possibilities, all three of which are in operation simultaneously. The level of "guidance," or direct influence, exerted on the learner by the instructor can range from almost none, as typified by many independent-study programs, to very considerable, as seen in the classical lecture or "cookbook" type laboratory. The actual level of guidance employed by an instructor in a particular situation often can, and even should, vary from time to time, according to the characteristics of, and progress being made by, the student(s). This fact is particularly relevant for the individual instruction that practitioners might provide for students and patients. This will be elaborated upon later.

The second dimension implies the level of student "activity" during the learning process – the extent they are actually engaged with the process of their own learning while in the instructional situation. In most lecture situations, for example, each student's level of engagement will vary, according to his own style – the methods by which he deals with an inherently passive situation. It is possible for him to be somewhat active by reflecting on what he is hearing, by examining it and responding internally. Typically, however, most lectures are low on the student-activity dimension, while most clinical experiences, in contrast, are high in terms of student activity.

The third dimension is the degree of "reality" of the activities in which the students are engaged – the extent to which these relate to the future responsibilities for which they are preparing. At the low end is the lecture. The acts in which students engage when in a lecture – listening, writing, trying to commit ideas or facts to memory – bear virtually no relation to the acts of caring for patients, which, for most, is to be their area of responsibility. Situations that do bear a relationship to caring for patients cause students to think through problems, to collect data from patients or about patients, to formulate resolutions to problems, or to generate plans for action. The extent to which the acts in which the students are engaged replicate, or in fact *are*, the activities in which they will later be engaged in their professional work is of considerable importance to the quality of learning that takes place.

To further clarify these three dimensions, and the way in which they are simultaneously in effect, let us look at how our usual instructional activities might be described. Typically, lectures are high in terms of "guidance," low in terms of "activity," and low in terms of "reality." Laboratories now take many different shapes but laboratory study often is high in student "activity." If the students are given initiative in the laboratory, as they now are in some, these can be regarded as low in "guidance." The traditional student laboratory is very high in "guidance," in that the students follow an explicit set of detailed instructions. Most are low in "reality," in the sense that most students' careers will not involve being engaged in the acts they are practicing in the laboratory.

What can be called generally the clinic situation – whether the office, the bedside, or the outpatient clinic – tends to be high in the "reality" dimension, high in the student "activity" dimension, and often, though not exclusively, low in the "guidance" dimension.

There is no automatic formula for judging a type of instruction as necessarily "good" or "bad" on the basis of its particular position on these three dimensions. At times, for example, a low reality exercise, such as a laboratory may be, can be both important and effective in fulfilling some "enabling" objectives on which subsequent high reality instruction will be based.

The issue is this: As instructors enlarge their understanding of these dimensions, they can become more critical in their design and organization of the teaching they offer, by asking and answering questions such as the following: What am I doing that influences the context of the instruction I am providing? Am I exerting too much or too little influence? Am I giving the students too much or too little independence? Am I shaping the experience for them so that it is appropriately real? Is it genuinely related to what they need for their careers? If not, are there good reasons why it is not? Am I keeping them as passive observers? How active are they? Is passivity or activity more consistent with their needs at this time?

We will next focus on the "tactics" of instruction. One of the acts most characteristic of traditional health-professions education is *telling*. You don't have to be in a lecture room to engage in telling as a tactic of instruction. Many medical teachers have been witnessed giving long, formal lectures to 100 students, to 10 students, as well as to individual students. In each case these teachers were primarily "telling." At times that approach is exactly the right one. But "telling" should not automatically be done just because it happens to be easiest or most convenient. A tactical decision should be made: Is telling the appropriate thing at this time, in this place, with these students? This question is appropriate whether one confronts 100 people, or 10 people, or one person.

Another popular tactic also quite appropriate under many circumstances is *showing:* demonstrating how to do something, how to behave, or even how to *be*, as a person. This process of providing a model in the actual clinical setting,[4] in fact, is one of the most important tactics in the use of individual supervision. While showing is most appropriate at times, many times it is not. We will return to this point shortly.

Finally, in this somewhat simplified examination of the tactics of instruction, the third is *critiquing*. This process is particularly germane in the individual instructional situation that dominates the practitioner's teaching activities. If one feature distinguishes individualized instruction, it is the opportunity for the teacher, not to demonstrate, not to tell, but to witness – to see learners in action and to provide them with what they need most: critical feedback; that is, information on how well they are doing, where they

are deficient, what they have done correctly, what are the areas where they need improvement. This is critiquing, which we will examine in greater depth shortly.

First, we will review, hastily and in an oversimplified fashion, the major advantages and disadvantages of each of these three tactics. (See FIGURE 3.) Teachers in an individual setting find use for all three. The challenge is to determine when to use which strategy, to what extent, and how to use them.

TACTICS	ADVANTAGES	DISADVANTAGES
TELLING	–Saves time and trouble. –Is inexpensive because group-oriented.	–Is superficial or confusing. –Ultimately students must actually do.
SHOWING	–Avoids serious problems. –Gives goals for students.	–Is small-group-oriented. –Ultimately students must actually do.
CRITIQUING	–Lets students actually do. –Gives fresh feedback.	–Is expensive because individual-oriented.

FIGURE 3
Selected Advantages and Disadvantages
of Key Tactics of Instruction

The process of telling has certain advantages. To some extent it can save time and trouble. It can alert students to important issues. It can serve as a short cut. It can give students something – whether guidance, alerting, information or whatever – that may save them from having to search it out for themselves. A further advantage is that telling can be done with a group, which makes it relatively inexpensive. This advantage pertains only in the group setting. Telling as an approach to individual instruction is expensive.

As summarized in Figure 3, there are potential counter-balancing disadvantages to "telling." This approach often proves to be superficial and confusing in its effect. The act of telling implies that the teller is able to perceive what the listener needs and is ready for. That is not an easy ability to acquire, even for one student at a time; it is impossible to have it simultaneously for a group of students with all their inherent diversity. The kind of information teachers seek to transmit through most of the telling in health-professions education is generally transmitted more effectively through other modalities, such as books, journals and self-instructional units. With these, the individual student can repeat those passages that for him or her need to be repeated and can skip passages that are superfluous or irrelevant.

The second major problem with telling is that it doesn't involve the student in doing. Telling can help prepare somebody for doing but ultimately the student must actually do those things being learned. In fact, it is coming to be recognized that students are much more receptive to being told things *after* they have been engaged in doing than they were before trying whatever it is they are learning. For example, the process of actually relating to patients and being confronted with medical problems leads to the students' wanting to be told things that will help them understand these problems. If they are told these very same things in advance of being faced with the problems patients present, the information seems irrelevant and inappropriate. Clearly it is not telling alone that is the issue; it is in part the context where the telling takes place. It is the relationship of what is told to other things the students have done and will be doing.

The act of "showing" can avoid serious problems. It involves the demonstration of procedures, approaches and methods, thus averting trial and error, which may be expensive, dangerous or undesirable in some other ways. It does something else: Showing provides an effectivy modality for sharing objectives with students. It gives them something to shoot for. Witnessing someone else doing a skilled history provides a model, a goal toward which students can set their sights and decide to move. The problem is that this tactic tends to be used excessively and inappropriately. Students require a certain level of readiness before they are able even to perceive the goals toward which they are expected to aspire. This is similar to the situation in which someone who has never tried to play violin has difficulty fully appreciating what Isaac Stern can do with the instrument; he can enjoy the music the master produces, but he can't comprehend the refinement, the skill, the delicacy of movement that distinguishes a greater from a lesser performer. Similarly a beginning medical student witnessing sophisticated medical interview may not even perceive the critical elements in the process. Until a person has struggled with trying to do an interview himself and has come face to face with such problems as the aggressive patient, the non-communicative patient, the tendency in one's self to be over-talkative, that person simply cannot even recognize the fact that somebody else has avoided all these potential difficulties. As a tactic showing is clearly not something one just does; it is an approach requiring careful planning in terms of timing, setting and readiness of the students.

The tactic of "showing" tends to be misused, or to have inherent disadvantages, in other ways. As a general rule, it should be used only with individuals or small groups. Yet one can find health-professions teachers attempting to show a class of 200 students a chemical experiement hard to see even from the front rows and totally inaccessible to the students in most of the room. Technological solutions to the problem of showing something to a large group are available. What really happens then is that the large group is reduced to several small groups through the process of being provided with its

own viewing opportunity, such as with the use of TV monitors. The fact that showing is small-group oriented tends to be a minor disadvantage in that it is more expensive than large-group exercises. But one of the lessons to be derived from this observation is that being inexpensive is not the same as being efficient. The fact that you can show people things in a large group inexpensively doesn't mean that they have necessarily learned anything. Efficiency is a ratio; it is not merely a measure of costs. Specifically, it is a benefit/cost ratio and if the benefit is low or zero, the efficiency is also near zero, regardless of the cost. The instruction of health professionals will always be relative expensive. The challenge is to assure that the benefits are sufficiently high for the process to be as efficient as possible.

The issue with showing is that, even though it has certain advantages and at times is the appropriate thing to do, it is not an end in itself. Having shown students something has not completed the instructional responsibility of the faculty. If it is worth showing in the first place, then it is likely worth doing; and it still must be done by the students.

The potential advantages of "critiquing" are multiple. Among the most important is the situation inherent in the very circumstances under which critiquing occurs: that is, critiquing by the instructor is possible because the student is actually doing whatever is the object of the learning – as contrasted with hearing about it or watching it being done. Ultimately it must be the student who does the doing. The only way to learn to swim is to swim, not to watch somebody else do it, not to watch movies about it, not to talk about it, but to get in the water, stay on top and move. The only way to learn to solve problems is to solve problems, and the only way to learn to be a health-care professional is to work at doing those things that health professionals do. So, the essence of critiquing is not the critiquing itself but the fact that the student being critiqued is engaged in performing tasks from which learning derives. An example of this process is provided by Quarton.[74] The other major advantage of critiquing is that the feedback a student receives is fresh. It is critical information that is the most useful and the most productive educationally. It occurs right then and there when it can best be put to use. A student who does an interview and is witnessed doing it but who doesn't discuss it with the instructor until the next day has lost a substantial proportion of the value of the critique. It isn't really a critique any longer; it is an intellectual review, which the student finds hard to associate with the events that had taken place. The instantaneous feedback characterizing well-done critiquing – that is done in the physician's office and in other individual supervision settings – is among the most powerful of our instructional modalities.

Critiquing is an individual-oriented process – necessarily, because that is just the way that learning happens to take place. A disadvantage of this method seems to be that it requires many teachers and thus is expensive, but

there is no substitute for it and the potential benefits are so large that the efficiency level of this approach can be reasonable and acceptable.

The process of selecting an instructional strategy that is most desirable for the students, for the objectives and for the resources at hand, it can be seen, is not a trivial decision. At the very least, the most appropriate setting should be selected or designed, a balance should be struck among the three dimensions noted, and the most desirable tactic should be utilized.

The next section will examine the requirements for implementing those strategies that are most frequently appropriate for practitioners to employ in serving as instructors of students or patients.

E. Using Techniques of Instruction

The instructional steps discussed in the preceding sections – the determination of student entry-level, the formulation of goals and the derivation of objectives, the selection or design of instructional strategies – all are preludes to the actual implementation of a teaching encounter. If the students or the patients do in fact need some assistance in acquiring specific competencies, some form of instructional exchange is indicated. Of the wide variety of existing instructional possibilities, relatively few are likely to be utilized by the health-care practitioner – given the numbers, characteristics and circumstances of those who are to be taught.

Of major importance to the practitioner are the techniques of providing individual guidance and supervision, serving as a model, conducting small groups, and utilizing self-instructional materials. These approaches are the subjects of this section.

Just as the *planning* of instruction has much in common with the planning of health care, as noted earlier, so the *provision* of instruction is strikingly similar to the provision of health care, especially the type of instruction most relevant to the practitioner. Both instruction and medical care should be based upon a personal, professional relationship between provider and "client" characterized by openness and trust. Students or patients receiving instruction, like patients receiving care, need to be: (1) sufficiently comfortable to be free to concentrate on the issues at hand, (2) able to trust their practitioner-teacher sufficiently to reveal themselves – their deficiencies as well as their strengths – so that he can appropriately identify and respond to their individual requirements, and (3) convinced that they are fully accepted as they are, without risk of criticism or rejection for their life-style, misconceptions or manner, or whatever – so as not to be distracted from the objectives of the encounter. Put in other words, the first step in implementing individualized instruction is the establishment of a relationship. Without the approrpiate relationship, the most elaborate and smooth techniques will be far less effective then they could be.

The following are several explicit steps that can be taken, or issues deserving attention, in creating an atmosphere in which a productive relationship is most likely to grow.

Honesty. The need for honesty on the part of the instructor is far more than an appeal for a return to quaint or old-fashioned values. It is the very heart of earning the student's trust, without which effective complex learning is unlikely. Honesty entails such matters as openly sharing with the student the specific objectives of the instruction and the bases on which he will be evaluated; revealing one's own uncertainties and limitations; and avoiding any form of duplicity or misrepresentation in one's expectations of the student, the assignment of tasks, or the provision of feedback. Kubie provides a thoughtful discussion of this issue in the context of instructing psychiatric residents.[54] The point is relevant in all areas of health professions-education.

Fairness. Medical care depends in large part on the patient's presentation of his or her symptoms of health problems. He must reveal what hurts, annoys or worries. Similarly, instruction depends in large part on the students' presentation of their "symptoms" of learning problems which involves their revealing their views, conclusions, observations, techniques, or whatever, for the scrutiny of the instructor. Students can readily withhold or distort many of their "symptoms," which they will surely do unless they are reasonably certain that they will be treated fairly, that they will not be rejected, condemned or otherwise hurt by what they reveal, and that they will be given due credit for their accomplishments.

Mutuality. The optimal climate for learning complex matter, especially competencies that depend heavily on modeling and emulation, is one of genuine mutual respect. A strained or openly antagonistic atmosphere leads to rejection by the student of the instructor, of what he says and of what he represents. A positive climate begins with the instructor setting the tone of the encounter. If he communicates a sense of valuing the student as a person, of taking his feelings and views seriously, and of welcoming his contributions, then the student is likely to reciprocate.

Withholding "values." The one area where the relationship between teacher and student might not be fully mutual is in the exercise of value judgments. Here teachers, like practicing health professionals, have an obligation to "give" more than they should expect in return. They should as much as possible withhold or suspend all their personal views regarding values, morals, or mores that are not germane to the objectives of the present encounter. Much as their personal views on, say, marriage are irrelevant when treating the child of an unmarried woman; their views on dress, hair style, or drug usage have no place when trying to help a "street-culture" medical student learn a set of clinical skills. If the relationship is contaminated by moralizing, preaching or adopting a condemning attitude, especially on issues which are quite separate from the stated instructional objectives, the relationship is sabotaged, and the teacher has failed.

Humor. A less crucial but still important contribution to the establishment of an educationally positive instructor-student relationship is the creation of a relatively relaxed tone. The teacher's capacity both to inject and to respond to humor comfortably, contributes to, and is a product of, an effective relationship. This is not an appeal for forced frivolity or contrived story-telling. It is, rather, an emphasis upon the general principle that students are more likely to feel at ease if their teachers are at ease. Natural humor – that emerges easily and spontaneously when sources of strain, defensiveness, and artificiality are removed from a relationship – is to be welcomed, not avoided, in the instructional enterprise.

Given the establishment of a comfortable, trust-based relationship, the instructor's concern should be with the specific techniques, methods, and other considerations that contribute to the effectiveness of individual supervision, modeling and group leadership. We will examine the issues related to the use of self-instructional materials later.

Basic to all instruction is the clarification for the student(s) of the expectations of the instruction. We tend to learn skills like driving a car or skiing quite efficiently because the expectations are clear; we have a good idea of what we are supposed to be doing, our instructors have a sound basis for evaluating our performance, and we are provided feedback we can understand. In contrast, learning in many college courses tend to be awkward, often painfully slow and generally inefficient because of the absence, or lack of clarity, of the expectations. The first requirement, of course, is that the teacher himself know the instructional goals. The second requirement is that they be communicated to the student. Only then can the student become a partner in the teaching-learning exchange.

The sharing of expectations has a number of components. It includes the goals, the specific objectives deriving from the goals, the criteria or level of performance that will be expected, and even the check lists or rating scales that should have been prepared and will be used as a guide in observing and evaluating the student's performance.

If all this is beginning to sound like an over-elaborate set of expectations, especially when compared to the rather casual approach we have typically taken to clinical instruction, we should reflect on the very considerable, if indirect, cost involved in having a student spend two weeks in a doctor's office, or having a practicing dentist devote a day a week through most of the year to a teaching clinic. The investment of time, effort, and resources is already considerable. Some additional investment that can substantially elevate the probabilities of a positive and lasting outcome would seem reasonable.

1. Individual Supervision

Let us now turn to some of the issues which should be attended to as part of functioning effectively as an individual supervisor. Among these considerations is the need to justify the technique in the first place. Because of its

expense and because of the difficulty in doing it well, one must have some substantially good reasons for utilizing the strategy of individual supervision.

Among the considerations that would justify the use of this procedure is the level of complexity of the tasks in which the clinical student is engaged. If the student is learning the care of patients, someone should witness what he does. Simpler tasks don't necessarily require individual supervision. For them a written or pictorial description can provide a kind of proxy supervision. In that situation the student compares his performance to what he reads or sees about how it *should* be done. In a way this is what cooks do when they work from a recipe. They are not only following instructions; they are also getting information about how the results of their work should turn out, and they are essentially providing themselves with their own individual supervision. Learning the complex tasks of solving clinical problems, of relating to patients and other clinical skills, doesn't allow that kind of self-supervision, at least until the students are quite well advanced in their development. Then it may be possible to substitute a written or recorded "proxy" supervision for the live personal supervision.

The *individuality* of supervision is not always necessary for learning but in medicine it is often dictated by the need for privacy. That is required by the patient, and at times it is required by the student. Effective supervision often deals with issues that are highly personal, both for the patient and for the student. An effective clinical instructor focuses on more than, say, the way the student's fingers were placed on the chest being percussed; he includes also such matters as the fact that the patient was made to feel uneasy by the somewhat aggressive manner used. These are not issues for public discussion. Finally, the context of the instruction itself, the setting where it takes place, the fact that it is in an office or a patient's room or a clinic, where additional people would be a source of discomfort or difficulty, further justifies the expensive procedure of providing individuality.

Among the leading purposes for use of the individual setting is the opportunity it presents for providing a model to be emulated by students. The model provided by the clinician serves to depict the very goals toward which the student should move. The techniques involved in serving as an effective model are, then, among the most important of the techniques of supervision. In this setting, the following are four of the most important of the potential goals to be fulfilled, or the attributes to be modeled.

The first may well be the cardinal goal of all health professions education: the cultivation of people who will never become obsolete, who will be dedicated to and skilled at continuing to grow throughout their careers. The individual practitioner in his or her office has an obligation to serve as a model for the student of someone who is continuously learning, who is constantly exposing himself to challenges that have instructional potential. This is achieved by saying such things as, "There is more for me to learn here; I am going to look into that question further and let's talk about it again."

Providing a model of the inquiring person and authentically demonstrating what is involved in being a continuous learner is a central responsibility and opportunity for a teacher.

A potential goal that has been discussed less often than continuing learning but that may be almost as fundamental to the practice of medicine is the ability to function productively and reasonably comfortably with substantial uncertainty. Uncertainty characterizes clinical practice at several levels: in terms of the kinds of problems that confront one, in terms of the solution of any individual patient's specific problem (some are genuinely insoluble), and in terms of the management of many problems, even if they have been defined.

The challenge to the practitioner is to avoid doing what students have often seen their full-time teachers do in the academic setting – to create a pretense of certainty when certainty doesn't exist at all. The pretense often tends to be created by such devices as asserting that there are definitive ways of viewing the complex issues on which lectures are given, or that there are clear-cut right and wrong answers to problems that remain controversial and unsettled. It is important not to create the image of certainty for the sake of simplicity when certainty doesn't exist. One way this occurs is embodied in the statement, "The way I handle this problem is to write a prescription for the following drug . . . ," when you know that the drug may not be effective at all or that the patient may not even take the drug when he gets home.

The third major goal particularly relevant to the individual setting can be achieved by providing a model of what can be called the ability to give: to extend oneself on behalf of others, as described by Kubie.[54] This ability includes willingness to subject oneself to a variety of discomforts, in terms of a readiness to listen to distress openly and sympathetically, and not to duck difficult or unpleasant material, as many health professionals sometimes do, by diverting patients to other topics as soon as they begin to get stressful or distressful. An example is when a patient begins to cry, or examine issues in an unpleasant personal light, thus arousing one's own uneasiness and insecurity. This ability to give under difficult circumstances can best be clarified, emphasized and cultivated by individual clinical teachers who provide an appropriate model in the supervisory setting.

The fourth goal to be discussed here is surely one of the most fundamental of all professional attributes: the willingness and ability honestly and appropriately to evaluate one's own level of competence on a continuing basis. Ultimately the students will no longer have teachers, or anyone else, looking over their shoulders as they work. Even with the growing prospects of various types of peer-review mechanisms, and even with the increasing possibility of relicensing procedures, the truth is that individual practitioners are now, and will continue to be, largely on their own. Their moment-to-moment and day-to-day activities can best be scrutinized by themselves, if they are open to doing so and have the necessary skills. Individuals develop

this capacity partly from being given actual practice at evaluating their own performance, and partly from the model that instructors can present of being openly self-critical and eager for constructive criticism. This attitude is conveyed by instructors who honestly say to their students such things as, "I'm here to help you learn, but I want you to know that I'm expecting to learn from you. One of the ways I learn is from the questions you ask me and the challenges you make; that will open my thinking to alternatives I haven't considered before. I want to be kept on my toes. Let's go at this together and let's help each other." That atmosphere makes for the highest quality individual supervision.

An additional issue deserves emphasis because of its potential for elevating the quality of individual supervision. It is the rich resource presented by the relatively new availability of inexpensive videotape. The essence of critical supervision is the provision of rapid and accurate feedback. To learn efficiently people need to understand what they have done, how they did it, and how they might improve. For the student no device or technique even approaches in vividness the experience of actually seeing himself do things in the first place. The opportunity to be videotaped and then confronted with one's own behavior is an enormous step forward in our ability to instruct. For any group of instructors with a fairly regular involvement in student supervision, videotaping and playback equipment should be considered a necessity.

2. Small-Group Leadership

Individual supervision, as has been noted, is optimally suited to the development of complex technical skills and personal attributes. Small-group instruction can also fulfill these goals, if somewhat less intensively, but it is best adapted to acquiring complex ideas and developing intellectual skills. The sharing and exchange, as well as the mobilization of contrasting perspectives, possible in this setting are especially well suited to the exposure, evaluation, and refinement of student thinking. It is a time for sharing viewpoints, revealing one's own thoughts or conclusions, hearing those of others, and providing as well as receiving critical reaction to one's views, perspectives, and patterns of thinking and problem solving.

In a substantial number of circumstances health professions students and patients can profit from instruction geared to these purposes. Health-care practitioners can reasonably be expected to provide such teaching.

To achieve these purposes, clearly the atmosphere of openness and trust described earlier must be created and sustained. Without it the students will withhold or intensionally distort their constributions and the entire activity will be aborted.

Given that the appropriate atmosphere has been established, several steps can be taken to enhance the quality of the exchange. These begin with an effort to assure that all involved fully understand and support the purposes of the group and the tasks in which it will be engaged. Any assignment, topics to

be discussed, or problems to be solved, need to be accepted by the group as appropriate, as related to the instructional objectives, and as worthy of pursuit. Any effort to shortcircuit this phase of group establishment will almost always backfire. The essential justification of use of the group process depends upon cooperation and collaboration among the members. People join fully only in tasks they regard as worthy.

Throughout the duration of a group's existence the instructor needs to attend to two different but related levels of concern – group maintenance and task pursuit. The establishment of the appropriate atmosphere and the securing of a common commitment are the initial steps in the first area of concern, "group maintenance": the creation and continuing cultivation of those conditions making for an effective group process. Sustained dissension, inattention, petty disputes, and preoccupation with irrelevancies all are symptoms that the group process is breaking down and that effort must be devoted to determining the source of difficulty, correcting it, and re-establishing the sense of common commitment of the task.

The second level of concern for the instructor is the pursuit of the task itself: the topic to be analyzed, the problems to be solved, the viewpoints to be shared, or whatever. The clearer and more explicit the task, the less likely "group maintenance" issues will require attention. The more diffuse, uncertain or controversial the task, the more effort will have to be devoted to maintaining the group process. For example, a group of patients brought together to learn how to reorganize their shopping and cooking to provide low-salt, low-cholesterol diets will generally get about the business rapidly and efficiently. By contrast, in another group of patients brought together, say, to learn to reorganize their lives after a leg amputation, initial and continuing attention to group-maintenance issues will probably be required.

A wide variety of different techniques may be useful in the second-level concern – the achievement of objectives. Many specific approaches are required for different particular circumstances. However, a few general principles are applicable to most group-learning tasks. All learners in all situations need "feedback" – they need information on whether and how, they are progressing, on the appropriateness of their observations and conclusions, as well as on the approaches they are using to solve the problems with which they are engaged. A properly functioning group shares the provision of this feedback among its members. The instructor's responsibility is to encourage this mutual offering of feedback and actually to provide it when it is not forthcoming from others. This instructor-provided feedback should be frequent if necessary and should involve questions and challenges in addition to evaluative observations. Although it is important at times to indicate whether a group member's contribution is correct or incorrect, it is especially necessary to allow the appropriate statements and conclusions to emerge out of the subsequent discussion. This further discussion should be facilitated by the instructor's providing feedback in the form of such

questions as, "How did you arrive at that conclusion?" or "Can you review the reasoning behind that solution?" or "What is the next logical step in the sequence you are developing?" Such questions must be asked in a spirit of neutral inquiry, without evidence of implied criticism, disappointment or approval. Indeed, they should be asked as often about correct observations as about incorrect ones. If the instructor telegraphs his evaluative judgment through the way his interventions are phrased or stated, the potential value of the exchange is lost. The students would be reduced to playing the traditional classroom game of trying to please the teacher instead of pursuing the goal of enhancing their skills as thinkers and inquirers about the problems at hand.

A central but difficult responsibility of instructors in the small-group setting is the management of the level of control to be exerted over the group. Since a purpose of using the strategy of small-group instruction is for the members to acquire the skills being practiced, it follows that the instructor should relinquish control of the process to the group members as rapidly as possible. That is, they should be provided the opportunity to manage the group process and to pursue the tasks as much they are ready to do. Since this level of readiness will change with time, control must be handled flexibly and managed with some delicacy. Throughout the conduct of the group the instructor should be "titrating"* his level of control by withholding comments and directions for periods of time, observing the capacity of the group to remain productive, and responding further according to his determination of need. His control over the group process should be withdrawn completely, however, only as a device for achieving the explicit objective that the group develop the ability to function autonomously. Otherwise the instructor should intervene whenever some help, direction or guidance proves necessary.

While the general principles and guidelines noted above for providing individual supervision and small-group leadership may assist the practitioner-instructor to get started or to refine skills already acquired, this hasty review cannot substitute for actual practice in performing these forms of instruction, or for direct assistance that might be available in a formal workshop. For the practitioner seriously committed to functioning as an instructor in these settings, both supplemental approaches to skill development are recommended.

3. Self-Instructional Materials

Both patients and students need to learn a variety of things, including the personal attributes and skills that are best provided by supervision and small-group exchanges, and the information and understanding that are best provided by more didactic techniques. It is recognized that well designed

*Editor's note: From "titration – a method of determining the strength of a solution or the concentration of a substance in solution in terms of the smallest amount of a reagent of known concentration required to bring about a given effect."

self-instructional materials can be more efficient and more appropriate than such conventional techniques as lectures and textbooks for helping learners acquire didactic content.[47,59,65] It is neither the practitioner's primary area for contribution nor an efficient use of his time to devote his effort to dispensing information to the students in his charge, other than what emerges naturally in dealing with clinical problems. Those bodies of information that are found repeatedly to be appropriate for students would reasonably be delegated to suitable self-instructional units. This brief presentation cannot equip practitioners to design new self-instructional materials,* but some guidelines for selecting among those available will be provided, below.

For patients, in contrast to students, it is appropriate for practitioners to provide, or to arrange for the provision of, many types of information on a wide range of subjects. Patient education should have a high proportion of information content. Much of this content, however, is repetitively similar from patient to patient. Again, therefore, the use of prepared self-instructional materials is indicated. While the individual practitioner should not delegate responsibility for, or avoid confrontation with, personal issues, such as a patient's acceptance of the limitations imposed by his recent illness, or the development of a commitment to lose weight, many straightforward matters of pure information and understanding can properly be relegated to a form of "proxy" presentation. From the washing and dressing of a wound to the preparation of an infant's formula, from the organization of living conditions for a stroke victim to the identification of signs of need for adjustment of a new diabetic's medication, there is an enormous array of patient-information needs that could properly be met by well-designed instructional packages.

The practitioner has the responsibility to be alert to the potential value of instructional units and to be able to judge those meeting an appropriate standard of quality for use by his students and patients. The particular modality used for a unit is of less importance than other features, except for its accessibility. Clearly, an instructional unit on a computer to which access is not currently possible is of no value, regardless of its inherent quality. Similarly, a unit on motion-picture film or videotape, if suitable display equipment is not conveniently available, is of no use. There is, however, no necessary advantage of a written presentation over a sound recording, or vice versa. Each should be judged on its merits.

The most important potential merits to be examined are: the objectives, clarity of presentation, activities expected of the user, provision for feedback, and actual evidence from trial uses. Objectives should be stated in ways consistent with the practitioner-instructor's own intentions. The manner of presentation should be adapted to the vocabulary, education and information

*For those interested in pursuing this subject, the following references are recommended: (29, 72, 73).

level of the intended users, and appropriate pictorial material should be included. With the possible exception of very short units, the format should include expectations of responses from the users, and some arrangement should be made for feedback evaluation of these responses. Ideally the designers of the unit should have tried it out first with learners similar to those for whom it is now intended, and data on the actual learning outcomes from that trial use should be provided.

Regrettably but perhaps not surprisingly, very few existing units will satisfy all these criteria. Judgments will often have to be made on limited evidence, and individual instructors will frequently have to assemble some of their own data and impressions on effectiveness from their own trial uses. Their awareness of the criteria that should be applied, however, can enhance the quality of their judgments, and may, we hope, lead to their pressing those who produce self-instructional units to raise the quality of available materials.

F. Evaluating the Effects of Instruction

To determine the outcomes of instructional efforts is important for several reasons. The instructors themselves must know how they are doing while teaching so they can make whatever "mid-course" corrections are indicated, and at the conclusion of a total teaching program they must have the information for planning revisions and improvements where necessary for the next group of students in that program. In addition, only through evaluative information can the students get the feedback that is the cornerstone of learning. As previously noted, efforts to learn without regular and systematic information on one's own progress are grossly inefficient and often ineffective. Finally, systematic evaluation is necessary to determine whether a particular program deserves to be continued.

As reasonable as it may seem for teachers to evaluate the impact of their own activities regularly, relatively little critical assessment of instructional effectiveness is done. Some recognition is growing that such a situation is unreasonable and, in fact, no longer acceptable. A premise of this presentation is that the evaluation of one's instructional contribution is as basic a requirement of teachers as the actual conduct of the instruction they offer.

Unfortunately, effective evaluation is a rather complex activity. This chapter cannot equip practitioners to become able independently to plan and execute a full program of instructional evaluation.* This section will indicate some of the major questions a teacher should ask about the instruction he offers and some general guidelines to follow in developing an evaluation approach. These should help organize a preliminary evaluation effort and should facilitate seeking and utilizing consultative assistance in conducting an evaluation.

*Those interested in pursuing this topic will find helpful a review of one or more of the following references: (16, 22, 24, 33, 44, 67).

The following are questions to ask in an instructional evaluation program.

1. What *should* the instruction achieve?

The fundamental point is that evaluation cannot be undertaken unless the instructional goals have been specified. You cannot know how well something has been achieved unless you know in advance what was supposed to be achieved.

2. *Can* the instruction achieve these goals?

The specification of goals and objectives does not necessarily assure that the instruction planned can achieve them. If, for example, the goals include an intention for the students to acquire a set of interviewing skills and the instructional strategy is to give three lectures on the topic, then an evaluation program is not worth the trouble. The instruction simply is not equal to the task assigned.

3. Are these goals *worth* achieving?

Still further, even if goals have been specified and are reasonable expectations from the program planned, there is no inherent assurance that the effort to achieve them is worth the trouble. One can easily devise achievable goals that are trivial or irrelevant. Part of evaluation should be the determination, by consensus judgment among experts and/or objective testing, that the intended goals are justifiable.

4. What *did* the instruction achieve?

This question can be answered at intervals throughout the instructional program as well as at the end. It is a matter of determining what were the outcomes of the instructional interventions. The question cannot be answered without information about the students' level of performance at the outset, as well as at interval and end points. Instructional achievement can be measured only in terms of changes that have been effected. The fact that a student is able to do a particular thing at the end of a course is no reason to assume that he could not have done it as well before the course began.

5. At what *cost* were the goals achieved?

An important element in determining the effectiveness of an instructional program is the calculation of the costs, in terms of time, effort, resources and actual expenditures. Some goals are so important that they must be achieved, regardless of cost. Other goals should be reconsidered if the cost is so substantial that other more efficient means to the same goals should be sought.

6. What goals were *neglected* or *negatively achieved*?

This is probably the most difficult question to answer in all evaluation. It requires wisdom, judgment, objectivity and honesty. Even when we can successfully demonstrate that we have formulated worthwhile goals and that they have been fulfilled at reasonable cost, we may not have been as successful as such findings would suggest. Many health-professions programs,

for example, succeed in having the students acquire a body of knowledge. These programs, however, are far less successful than they are often assumed to be because they neglect other goals, such as to produce graduates who are devoted to, and skilled at, continuing self-learning. Without the ability to sustain one's competence, the fact that a particular level of competence was achieved at a particular point in one's life is not cause for self-satisfaction by the instructors. In addition to the risk of having overlooked some vital goals, we must be constantly alert to the danger of doing damage. A program, for example, with the goal of having all students learn to take a systematic family history may, in fact, fulfill this purpose, as demonstrated on a final practical exam in which the students all successfully take a family history. If, however, the program has not helped the students develop a sense of commitment to the importance of family-history information in patient care, the students may have developed a negative attitude toward such information and may discontinue assembling such data as soon as the exam is over. The point of this observation is that evaluation of students and of instructional programs must include some opportunity to assemble information on the students' spontaneous behavior on a day-to-day basis, in addition to any information assembled on them, in the context of a formal testing program. The crucial result is the inherent repertoire utilized by the students as part of their routine performance, not the extremes of performance specially mobilized to impress an examiner. The practitioner has an excellent opportunity to assemble such day-to-day information.

The questions listed above imply that the instructor has an obligation to undertake a number of steps and to follow a number of procedures, as part of the instruction offered, in order to get valid and useful evaluation data. The following abbreviated list of steps may help guide the practitioner-instructor in thinking through an evaluation approach to the instruction they provide:

1. Determine what you want to achieve. (Formulate your goals and objectives.)
2. Be certain your objectives are achievable and worth achieving.
3. Measure the students' competencies prior to instruction.
4. Measure (both formally and informally) the students' competencies at intervals throughout instruction.
5. Measure (both formally and informally) the students' competencies after instruction – giving attention to neglected and negatively achieved goals.
6. Explore the possibility that other factors may have helped or hindered learning.

It should be clear from this brief review of the key issues that the process of instructional evaluation is fairly complex and a fair effort is necessary to do it well. This effort is well worthwhile for reasons that have been given. But a further justification for such an investment is so important as to be a sufficient reason by itself. This is the substantial value to the students

themselves of the existence of an atmosphere where their instructor is conscientiously and openly searching for critical evaluation information on the effectiveness of his own activities. Such atmosphere is bound to have a bracing effect on students, both in terms of their regard for the instruction itself, and in terms of their learning by example to the health professionals who approach all their activities, including patient care, with critical openness to evaluative information.

IV. THE PRACTITIONER AS TEACHER OF STUDENTS

A. The Issue

At one time, in the apprenticeship model, many practitioners played central roles in the education of students. With the growth of biological science and the progressive dominance of the university as the base for health-professions education during the past half-century, the nonuniversity-based practitioner has moved farther into the periphery of creating new health professionals, and in many places has been removed entirely. An intriguing feature of the early 1970's is the discovery that the practitioner may in fact have an indispensable contribution to make in the education of future practitioners. As will be expanded below, the health-care practitioner has a perspective, a set of skills, and a growing body of experience that have substantial relevance for students. The physician or dentist or social worker, or other health practitioner, who has become a full-time faculty member of a university is, by definition, removed from engagement with some of those practical factors now becoming accepted as central to the creation of future health practitioners. This matter is being given increasing attention internationally.[11,12,14,49,61] The present section deals with the purposes and methods of involving health practitioners as teachers of students.

B. The Rationale

The overwhelming majority of medical students in North America become practitioners of medicine. The most recently available figures indicate that fully 90 percent of the medical graduates in the United States enter community-based practice, that only 4 percent have become full-time academicians, and that no school in the country has more than 13 percent of its graduates in full-time academic work.[6] The impression is that in other countries an even higher proportion of medical graduates move into a career of practice, as do the graduates of schools of the other health professions in both this and other countries. A general principle is that one of the most important requirements of preparation for a particular career is an actual engagement during one's learning with the demands of such a career. If one is preparing to be a research scientist, then it is mandatory that the preparation include actual engagement with scientific research. It follows that, if one is

preparing for a life of practice of community-based patient care, direct participation in actually providing community-based patient care is mandatory.

As White and his colleagues have demonstrated,[84] the university hospital simply is not representative of the problems or characteristics of community-based patient care. This does not deny the appropriateness of the university hospital as a base for several important activities, such as student learning of particular skills, or as the arena for testing and demonstrating a variety of specialized and experimental approaches to patient care. Nevertheless, the incontestable fact is that the university setting is not adequate as the *exclusive* base for the preparation of health practitioners. Future health professionals need an opportunity to confront the range of demands, the potential rewards, the frustrations and the limitations of "real-world" community-based health care. In this way they can acquire the competencies needed for that type of career and formulate meaningful and informed decisions regarding the nature and setting of the work they choose to do after they have completed their education. The appropriateness and potential benefits of re-engaging community practitioners as instructors of students have been emphasized by a growing number of authors.[21,26,51,58,70]

An intriguing feature of the involvement of health-care practitioners in the systematic instruction of students is the promise such activities hold for the continuing education of the practitioners themselves. As previously noted, one of the most effective devices for learning is to become responsible for helping others learn.

Thus the rationale for having health-care practitioners involved in the instruction of health-professions students is double: It is necessary for the optimal education of the students and it is highly desirable for the continuing education of the practitioners themselves.

C. Goals

The particular goals and objectives any individual health-care practitioner might have for his work with students assigned to him will depend on many factors, including the instructor's personal strengths, particular setting of work, and areas of interest; the particular student's level of performance, career interest, and specific strengths and deficiencies; as well as the school's particular program, intentions, and specific requests. The enthusiasm of community practitioners for their work as teachers of students and their views on reasonable goals to be pursued have begun to appear in the literature.[42,77]

Despite all these possible influences on the selection of goals, only a few categories of goals are likely to be the primary focus for practitioner-instructors. As a guide to instructional planning, these few are listed and briefly described below. They are not in any priority or sequential order.

Application of Information. In most programs to which practitioners contribute, it can be expected that the students will have previously been exposed to, and have gathered, specific information relevant to the applied clinical setting. A general goal, then, of much of the clinically based instruction offered by practitioners would be to provide students an opportunity to see and understand the ways the information they have acquired has practical value in application of specific clinical problems.

Information-Gathering Skills. The applied clinical setting is the optimal opportunity for students to acquire or substantially refine their skills in assembling and interpreting the type of clinical information most germane to the work they will eventually be doing. This may be information from and about patients, as well as from and about families, communities, and institutions – according to what the domain of activity of the supervising practitioner happens to be. The problems on information-gathering are likely to be different in the work setting of the practitioner from those in the university setting. It is especially desirable for the practitioner to identify the particular features of his or her work settings that are new and different for the student, and to assure that appropriate experiences and supervision in the necessary skills are provided.

Problem-Solving Skills. The gathering of information is only the first step in a sequence leading ultimately to the solution and management of problems. The actual steps in solving these problems – the sensing of the existence of problems, the sorting of important from unimportant problems, the formulation and testing of hypotheses – are all worthy and appropriate goals for the instruction provided by practitioners.

Communication Skills. The work of most health-care practitioners depends substantially upon the exercise of effective communication with patients, as well as with colleagues, superiors, subordinates, and others. The processes of collaboration, patient referral, team efforts, and more, require both oral and written communication, and involve skills not necessarily introduced or practiced in the conventional university-based learning setting. These, therefore, are worthy and appropriate goals for the practitioner-based instructional setting.

Office-Management Techniques. For health professions students assigned to practitioners responsible for office management, it is particularly appropriate that the goals of the encounter include if possible assistance to the student in learning to grasp and manage at least some of the major problems in organizing and efficiently running an office as a base for the provision of health care. This otherwise-neglected issue can make the difference in the efficiency, and thereby the quality, of the health care provided and it deserves explicit attention.

Personal Development. Several possible and highly appropriate goals for instruction provided by health-care practitioners relate to the definition, orientation, and emergence of the actual identity and personal functioning of

the student preparing for a health-professions career. Part of the purpose of exposure to a practicing professional is the opportunity it gives to sample the stresses and rewards of such a career, and the life-style associated with it. These are central issues in personal career-definition and deserve being given explicit time and attention in the instructional format provided. Intended or not, the personal life-style of the practitioner, both in the way he approaches his professional responsibilities and the way he conducts his provate life, is evident to the student and can serve as either a positive or negative model. It is reasonable, therefore, for the practitioner to reflect on these issues and give them important stress – both to enhance the learning and to avoid misconceptions and misunderstandings.

Professional Manner. As with personal life-style, the practitioner's manner of meeting his or her professional responsibilities is vividly evident to the student and can be a potent force in the development of the student's own professional style.[14] Such issues as openness to critical evaluation from one's self and from others, strength of commitment to continuing learning, quality of relationship with patients and colleagues, and other issues can have a substantial positive or negative impact on students and deserve deliberate attention by the practitioner, to help assure that the educational potential is realized.

While the above may not encompass all possible goals an individual practitioner may have for his or her work with students, it probably does embrace most that practitioners might reasonably expect to pursue. Indeed, it is probably a more comprehensive array of goals than might ordinarily be pursued, and it may serve as a rough reference point against which one's own plans can be checked for adequacy. One of the problems in educational planning is a tendency to limit our effort to those things traditionally regarded as the acceptable domain for health-professions education, and to omit some of the issues noted above, which actually could be more important than those usually included.

D. Techniques.

The specific instructional techniques most likely to be utilized by practitioner-instructors when working with students are fairly few. Most prominent would be: demonstration and explanation, individual supervision, modeling, and small-group leadership. Each of these, in turn, would be used in a somewhat circumscribed fashion.

For the most part, the demonstrations given, the explanations offered and the modeling provided would be related to the day-to-day activities the practitioner is engaged, whether or not there are students present. Probably the practitioners would not have to make any substantial deviation from their accustomed style of functioning for purposes of providing these forms of instruction. The main deviations are the extra time that would have to be

allowed for[7,77] and the delegation of patient-care responsibility to the student.[76] Demonstrations, explanations, and modeling shoehorned into an otherwise full or hectic schedule do not give the exchange of views, the evaluation, or the feedback that are all vital to quality learning. And modeling demonstrations, while most important to exposing students to the ways in which practitioners work and learn,[52] must be balanced with opportunities for the students to practice these skills themselves.

The conduct of individual supervision and of small-group leadership, as elaborated upon above, require both time and specific abilities. Serving as an instructor of students brings an obligation to develop and continuously refine one's abilities to utilize these techniques effectively. As will be expanded upon further below, programs will have to be developed to assist practitioners in this process. In their absence, for the present many practitioners will have to do the best they can, virtually on their own.

The most effective approach to continuing learning about one's own teaching (in addition to reading whatever is available on the subject) is soliciting the assistance of one's own students. Once convinced that a teacher genuinely wants to improve his or her teaching, and that constructive criticism will be welcomed rather than penalized, students can be enormously helpful, through the advice they can give, the reactions they can share, and the alternatives they can propose.[70] Rouse and his colleagues have reported an experience in which student evaluation of teaching was aided by a carefully designed rating form and systematically implemented throughout one medical school.[80]

E. Requirements

As is undoubtedly evident from all of the foregoing discussion, the provision of effective instruction for students should be regarded as a substantial undertaking, requiring considerable effort and resources. In sum, the practitioners must be expected to make at least three kinds of contributions, and the parent institution to which the practitioner is making a cor tribution can be expected to make at least three kinds of contributions in turn.

It is reasonable to expect that the practitioner's investment will be in terms of: preparation for their instructional tasks; time devoted both to the preparation for, and the implementation of, their instruction; and the provision of a setting with facilities appropriate for the instruction offered. The preparation to be undertaken involves both the activities that will contribute to the elevation of their own competence as instructors and the planning activities that should be associated with any instructional task. Clearly both of these categories of effort require time, as does the process of absorbing one or more students into the activities in which the practitioner is otherwise engaged.[21,36,43]

In addition to time and preparation, effective instruction demands the availability of an appropriate setting, with certain facilities. At the very least, space should be available for the planned and unplanned private discussions that will occur. As previously mentioned, simple videotaped equipment can be most helpful if the instruction involves the practice and acquisition of complex clinical skills. It is also desirable for the student to have a desk or a table at which to write and to review reference material as well as self-instructional packages – activities in which students should intermittently engage. This in turn suggests the desirability of having a small reference library available as part of the total instructional setting. While none of these facilities should be regarded as mandatory, they are sufficiently desirable to be appropriately considered as goals toward which a group of practitioners might move as part of their continuing responsibility for instructing students. A subcategory of "facilities" required for teaching is the availability of patients, for both observation and interaction. Richardson's findings[79] that barely one in twenty patients declines permission for such participation is consistent with the general experience of practitioners who themselves are comfortable with the presence of students.

Clearly the provision of the three categories of contribution summarized above can place a considerable burden on the health-care practitioner. It would be only reasonable to expect that the sponsoring educational institution in turn meet its responsibilities to fulfill three other areas of obligation. These are the important areas of credibility, support, and reward. Among the most pathetic of our educational miscarriages of the past has been the assignment of students to community practitioners who were then actively discredited and demeaned by the full-time faculty who had arranged for the students to be assigned there in the first place. There must be an unequivocal commitment on the part of the sponsoring institution to the importance of practitioner-instructors in the program, and several explicit steps must be taken to confirm their credibility as contributors to the students' education.

The institution has the obligation also to provide a variety of forms of tangible support to the practitioner-instructors. This should include, where possible, workshops, seminars, and other activities to enhance the instructional skills of the practitioners, instructional materials that can be used by the practitioners to increase their contributions, equipment for the display of these materials, and even books for a small reference library.

Finally, the educational institution has the obligation to reward the contributing practitioners appropriately. Ultimately, this reward should be tangible, and not just in terms of titles and recognition, necessary and appropriate though they are. Reward can also be provided tangibly in the form of continuing education activities, relief from practice through the provision of occasional substitutes,[56] and, as one school has done, the establishment of a charge account at a local book store.

A number of schools have now had the experience to confirm the assertion that a substantial number of highly capable practitioners are willing and able to make generous, high quality contributions to an institution's educational program, if the institution, in turn, fulfills its half of the bargain by attending to the three requirements just noted.

V. THE PRACTITIONER AS TEACHER OF PATIENTS

A. The Issue

The basic issue is: Should the responsibilities of health-care practitioners include overt instruction of patients? Underlying that question is the following series of fundamental questions: Are there ways in which better information or understanding or even specific skills can help patients to care for themselves? . . . or to avoid further illness or complications of illness? . . . or to select more effectively among the available array of health services? If so, what specific instruction is most desirable and who should provide it?

Increasingly, health professionals as well as the general public assert that there is an unquestionable need for many forms of patient education and that health professionals have a major responsibility for either providing or assuring the provision of this education.

The assumption, underlying this section, is that it is both appropriate and desirable for health professionals to equip themselves to provide various forms of patient education as essential parts of their offering of health care. A further assumption is that virtually all aspects of the health-care process can be strengthened by a quality program of patient education.

Health care can be thought of as embracing three distinct components, in terms of the participants. The first is that set of activities, often considered public health measures, which occur behind the scenes, without the direct engagment by patients. This includes such measures as water purification, improved automobile safety and the removal of industrial hazards. That these decisions and actions have traditionally occurred outside the usual health professional/patient environment does not eliminate the central importance of patient education about them. Clearly public support, indeed demand, for appropriate public health measures, as well as optimal utilization of available resources, requires an educated populace. The important but generally neglected role of the health practitioner in these areas is most effectively examined by Haggerty.[37]

The second domain is the traditional health professional/patient environment in which both are active participants. Here again patient education can make a significant difference in prevention, access to, and utilization of available care resources, and for participation in treatment. Indeed, there are occasional studies, such as one by Skipper and Leonard,[83] which have indicated that appropriate educational preparation of surgical patients can actually accelerate recovery. These various points will be elaborated upon below.

The third element of the health-care process involves those situations in which the health professional is not directly involved and patients function independently. This occurs in such situations as the decision whether or not to seek care, the self-care that individuals undertake prior to seeking care, the recovery phase following care, and the daily-life situation when overt illness is not involved but prevention can be a paramount consideration. Once again the importance of patient education for each of these aspects of independent functioning would appear to be self-evident.

B. Rationale

As with the circumstances of health-care practitioners serving as instructors of students, so with their serving as instructors of patients, there is a double rationale. The health care provided for patients is improved, and the practitioners themselves benefit from more efficient and satisfying utilization of their time and effort.

The health-care system can be viewed as embracing four major subsystems: (1) methods for sustaining health – that is, anticipating and preventing illness (Dentists have tended to be more attentive than physicians in using patient education for preventing illness[17]); (2) approaches for detecting meaningful deviations from health as rapidly as possible; (3) techniques for bringing patients together with appropriate sources of care when necessary; and (4) mechanisms for providing quality care when indicated. Clearly a significant component of each of these aspects of health care is the level of information, understanding and skill of the patients themselves, or of members of their families. An important further consideration is the level of interest in learning of the patients themselves. As Pike has determined,[71] people do not necessarily want health education about those matters which are of greatest pertinence to their own welfare.

Consequently, an appropriately informed and motivated public, capable of pursuing preventive measures, able appropriately to detect problems requiring the assistance of health professionals, knowledgeable of and able to select among available health-care resources, and committed to and capable of assisting with treatment programs would, at the very least, substantially reduce the current load on the health-care system, assure more efficient utilization of existing resources, avoid wasteful and dangerous neglect, and be spared substantial amounts of needless anxiety.

The rationale for effective health education of the general public would appear to be beyond dispute. Is there, however, a rationale for having health professionals themselves provide this education? Certainly it would seem reasonable for families and schools to assume some of the responsibility for health education. Unfortunately, that is unlikely to be enough. People are never so responsive to instruction as when they have a genuine need to learn. Much as learning the operation of the parachute is pursued with unrestrained eagerness by the individual choosing to pursue the sport of skydiving but is of

indifferent interest to others, health information is best assimilated by the individual who is, or is in danger of becoming, ill. It is of little interest to, and poorly learned by, healthy people, especially healthy children who have difficulty even conceptualizing serious illness in the future. Much health education is optimally provided as an integral component of the process of health care.

There is a further rationale for the participation of health professionals in the provision of health education. The very process of determining the educational needs of patients, the organization of material to respond to these needs, and the related requirement of continuing alertness to the level of comprehension of patients brings almost automatic benefits to the health professionals themselves. As with the process of instructing students, these activities compel the health professionals continuously to remain up-to-date in the areas of their responsibilities, and to be sensitive to the unique characteristics and needs of their patients in ways that can only improve the quality of care they provide.

Again everyone benefits and no one loses.

C. Goals

The specific instructional goals that health professionals might have for their work with patients will vary considerably, depending upon the educational level, the medical status, and the age of the patient, and depending also upon the field, areas of interest and competencies of the health professional. Despite these variables, most patient-educational requirements can be subsumed by a few instructional goals. These are briefly summarized below.

Provision of Information. An enormous array of potentially valuable information exists for patients, depending upon their circumstances, capacity for independence, educational level, and medical condition. Most individuals could benefit from more information about approaches to primary prevention of illness (maintenance of optimal health); the identification of danger signs indicating the need for professional assistance; the range and characteristics of potentially available sources of health care, methods for self-help for minor conditions, approaches to the management of more serious problems with the assistance of health professionals; and many other subjects. As with students, the specific informational goals for patients should be individualized according to their needs and readiness. Appeals are beginning to appear in the literature for dentists,[3] nurses[35] and physicians[38] to take more active roles in providing health information for patients.

Development of Understanding. Understanding makes possible the effective utilization of information that has been acquired. Appropriate understanding permits the exercise of independent judgment, which can reduce unnecessary demands upon the health-care system, and increase appropriate demands (which can reduce needless delay and neglect) and increase

appropriate self-care. As will be discussed further below, the achievement of understanding requires approaches and methods somewhat different from those used in providing for the acquisition of information. Contributors to the dental literature appear to have been especially sensitive to this issue.[30,41,68,69]

Alterations in Life-Style. The possession of appropriate information, or even of a substantial level of understanding, is not necessarily sufficient to cause people voluntarily to undertake important changes in the way they live and behave. Yet, in health care, the processes of prevention, recovery, and even life itself can depend upon meaningful changes being wrought in one's way of life. It is an educational challenge of some magnitude to bring about such changes, at least in some people. For many patients the simple approach of telling them to do something is inadequate. If this goal is to be valued and pursued, other instructional techniques have to be utilized, as will be discussed further.

Compliance with Advice. Although the goal of having patients follow advice they have been given can be seen as a subcategory of having them acquire appropriate understandings, or of the goal of their changing their life-style, it deserves special attention because of its frequency, its importance in health care, and the considerable lack of success the health professions have had in achieving this goal in the past. Clearly not all advice requires a change in life-style, yet it often demands more than just intellectual understanding of the issues involved. If instructions or advice are worth offering in the first place, they should be complied with. Yet, we know that very often they are not. As Davis and Eichhorn have demonstrated with cardiac patients, the achievement of compliance with recommended regimens is a complex process with nonassured outcomes.[19] Partly, it must be acknowledged, some advice is given that does not deserve to be followed. Such should be eliminated. If there is to be compliance with what remains, specific instructional techniques should be utilized to increase the likelihood of this desired outcome. As Glogow[34] and others have found, what patients are told may be less important than the manner in which they are told.

D. Techniques

As implied in the above discussion of goals, there are two primary categories of patient education for which provision should be made: (1) the offering of didactic instruction, and (2) the exertion of influence on attitudes, commitments, and, indeed, on the virtual way of life of individuals.

Depending upon the complexity, extensiveness and characteristics of the didactic material to be provided, the appropriate techniques might involve "telling," explanation, advice or demonstration. Some guidelines for effective verbal communication in clinical practice are provided by Bell[8] and Cappa.[15] While many times these techniques of instruction would be utilized by any given health professional, particularly when relevant to and in the context of

the actual provison of care, many times didactic instruction can be, and indeed should be, delegated.

These responsibilities might be delegated to other health personnel who are specifically equipped or available for providing these forms of instruction; or the delegation might be to some form of self-instructional package.[2,13,66,81]

As discussed in the section on the Instructional Process, above, the practitioner may not be equipped to design self-instructional materials for his or her students or patients, but should become increasingly aware of the growing range of available resources that can be called upon and utilized in various ways. Commercial publishers, pharmaceutical manufacturers, university groups, and agencies of the Federal Government are all now producing carefully designed instructional units on a wide range of topics for use by patients and members of their families for acquiring information, understanding, or specific skills relevant to health care. At least one large clinic has assembled a large collection of instructional materials for patients, which are literally "prescribed" by physicians for their use. Blagg and his colleagues have described an effective program for developing independence and self-confidence in hemodialysis patients using the actual procedures involved in self-care, and simulating the patient's home environment.[9]

The existence of self-instructional materials, or the availability of supportive personnel who can provide specific elements of instruction for patients, does not minimize the need of the responsible professional (the physician, nurse or dentist, or whoever) carefully to determine the specific needs of the patient, the level of readiness of the patient, and the identification of the most appropriate instructional approach.[35,82]

Some additional instructional requirements of patients are not readily delegated. These are the instructional interventions most appropriate for bringing about the attitudinal and behavioral changes that are so often central to effective prevention or management.[5,19,55] The techniques that are most relevant (in addition to the offering of strong, clearly stated, sensitively provided advice) are the provision of models, where appropriate. The provision of a suitable model may perhaps be more important from the perspective of avoiding negative effects than from the perspective of providing positive influence. While a slim, nonsmoking physician may have some positive influence on a patient who needs a diet and give up smoking, a chain-smoking, obese physician is at a distinct disadvantage when recommending such a treatment plan for a patient.

In providing that form of instruction which exerts influence over the significant behavior of patients, at times it is appropriate for health professionals to bring together patients with similar needs to engage in a group-learning experience. A main function of this instructional technique is the exertion of peer influence, which, coupled with the authority influence

from the health professional, can be a potent factor in helping individuals to alter their accustomed behavior.

E. Requirements

Like the education of students, the instruction of patients requires a variety of special arrangements and circumstances if it is successfully to achieve its many important purposes. Fundamental is the requirement that the health professionals themselves be committed to the importance of this aspect of health care and competent at making it effective. Neither of these requirements have been well met in the past, and will not easily be brought about in the future.

The individual practitioner who is already committed to the importance of patient education has no problem. The problem is with the practitioner who is disdainful of these notions or who is resistant to considering them. While continuing efforts at persuasion, through continuing education programs, may have some small effect, little will likely be done with these practitioners until requirements are imposed by licensing or other audit routes.

For those who are ready to get actively involved in the process of planning for and providing systematic patient education, or for improving what they are already doing, some requirements will, unfortunately, have to be met almost exclusively by the practitioners themselves during the immediate future. In the longer range there may be hope that the financing programs of health care will include adequate provision for patient education. But at the present time, the hours, instructional materials, appropriate equipment, the necessary setting for use of instructional materials and small group meetings, as well as support personnel who might complement the individual practitioner's efforts at patient instruction – all will have to be provided by the practitioners themselves, out of income generated from patient care.

Such a new effort – like other important new developments – must have "start-up" costs. An initial investment must be made to change the pattern of accustomed operation, with the expectation that the longer-range outlook will be for greater efficiency and effectiveness. There is every reason to believe that the productivity of health professionals will be substantially enhanced by effective continuing programs of patient education, even if their initial productivity might appear to be lower during the time of changeover from conventional care patterns to one in which a significant proportion of the practitioner's time is devoted to providing or supervising the provision of patient education.

VI. THE DEVELOPMENT OF PRACTITIONER-INSTRUCTORS

Considering the central importance of patient education for health care, the desirability of having practitioners participate in the education of health-professions students, and the effectiveness of instructing as a major modality for self-learning, it would seem beyond dispute that health-care

practitioners should be active and competent as teachers. Equally beyond dispute, competent teachers don't just happen – they need to be selected, cultivated and developed.[18,48]

Until recently virtually nothing was done to promote or reward the instructional competencies of health professionals, even the full-time teachers in their field. There is now a growing international recognition of the need for and desirability of programs to enhance the instructional abilities of teachers in the health professions. The programs that have developed, however, are almost exclusively for the full-time faculty members of colleges of the health professions. Since the full-time teachers do bear the largest proportion of the instructional burden in the creation of new health professionals, reasonably they should receive first attention in teacher development. This will be the primary focus of the new international program being fostered by the World Health Organization in many parts of the world, and of the teacher-development programs recently begun to be supported by the Bureau of Health Manpower Education of the National Institutes of Health in the United States.

Nonetheless, it must be acknowledged that a growing proportion of the responsibility for the education of health professionals will be assumed by practitioners and that they must become far more active than they have been in the area of patient education.

Preparation for the responsibilities of patient education should reside with the schools themselves and become part of the initial development of health professionals.[36] As far as one can tell from the published literature, only the nursing field has given systematic attention to including the development of skills at patient education in the process of initial professional development. The other health professions, it seems, have given only occasional or accidental attention, or paid none at all.

A very few schools in a small way have begun to offer some occasional workshops, seminars, or packaged instructional materials for community practitioners who are participating in their instructional programs.[39,75,78] To date there is no evidence that this has been formalized or systematized anywhere in a way that could lead to ready program duplication at other institutions that want to begin contributing to teacher development among their community practitioners.

A first step must be the acknowledgment by the institutions that educate health professionals that they have a responsibility for the selection of community practitioners who can appropriately serve as teachers of their students, and then to provide regular programs for the development and enhancement of their abilities. An occasional encouraging sign appears of schools at least acknowledging that the community practitioners have an important contribution to offer in their educational programs, and that they have a responsibility to select the ones who will be the most appropriate models for their students.

What is now needed is the development of sources of support for two kinds of programs: (1) those that systematically educate health professions students to be effective teachers, both of patients and of others; and (2) programs regularly to enhance the competencies of community physicians as teachers of patients and as teachers of students.

Being a teacher, especially one who seeks to fulfill the type of goals most appropriate for patients and for health professions students, requires both a set of highly developed skills and a set of particular personality characteristics. Given the importance of patient education as a part of health care, it is not unreasonable to expect schools of the health professions to begin to attend to some of the personal characteristics needed for establishing effective interpersonal relationships as part of their expectations in the selection process. Nor is it unreasonable to expect schools of the health professions to attend to these characteristics when selecting community practitioners to participate in the instructional programs.

It would further seem reasonable that teacher development programs be designed to offer instruction at several levels. One would be the relatively straightforward didactic presentation of observations, issues, and information to help with the orientation of practitioners to their tasks as teachers of students and patients. This could be done in brief workshops or seminars, or through the use of well-designed instructional packages. A second level should also be opportunities for the development of more explicit practical skills, through the use of simulation and micro-teaching techniques, in which the aspiring practitioner-teachers gain actual practice in establishing relationships with patients and/or students who present various kinds of difficulties; the practitioners-teachers should get effective, supportively critical feedback on their strengths and deficiencies, so they can refine their manner, approaches and techniques. While this may sound like more than an institution might offer, or more than practitioners might accept, it is not at all an unreasonable expectation. For several years this very approach has been used at Michigan State University in the preparation of community physicians as participants in a teaching program for the development of doctor-patient relationship skills in medical students.[50]

An effective and comprehensive program of preparing health professionals to be good teachers of patients and of students is a most substantial undertaking. Both available evidence and logical examination of the issues would appear to support the proposition that the benefits are potentially so large that a substantial investment would indeed be justified. Let us hope that all those who share this view will do what they can to influence the relevant institutions so that appropriate programs can begin to emerge.

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Effective Caring: An Approach to a Rational Scheme for Financing Continuing Education for Health Manpower

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Continuing education for health manpower means so many different things to so many kinds of people in so many kinds of circumstances that it would be useless to try to describe prevailing practices and impossible to try to prescribe what its patterns of financing ought to be. However, it is possible to list and to analyze some of the main considerations that must be taken into account in devising a more rational scheme of financing continuing education for health manpower. An approach must begin by recognizing that two massive social forces are pressing for fundamental changes in the American health-care system. One of these forces is for accountability. The other is for humanism. Both terms need to be defined and their relationship needs to be indicated.

Accountability is procedures to give the public evidence that the money it is spending to attain stated objectives in health care is actually attaining these objectives or, if not, evidence that the measurements of the deficits in performance are available and the plans for making them good are being pursued. Humanism, a less precise term, involves values and attitudes. Individually, it means that health care should primarily be concerned with human beings, not with diseases and disabilities. Socially, it means that high quality health care should be equally available, accessible and acceptable to all people as their basic right. Organizationally, it means that institutions and bureaucracies should serve human beings and society, not human beings and society serve institutions and bureaucracies. In accounting, it means that the proper focus is not upon the input of resources into institutions and bureaucracies but upon the output of their services to human beings and society.

This last point is where accountability and humanism come together, or, better, should and can come together. Some humanists are uneasy with the concept of "accountability," because in its attention to management, planning, the specification of objectives, the insistence upon quality control and measurements of results, using quantifiable data, particularly in computers, they see further dehumanization and alienation. Let us grant that this

could be the result. Some planners and evaluators are admittedly impatient with factors that cannot be "quantified," sometimes to the point of acting as though these factors do not exist or at least can be ignored. But this polarity need not exist, indeed it must not be permitted to develop. Humanism cannot be well served in complex situations and on a large scale unless full advantage is taken of the best managerial and technological techniques. No health care can be truly efficient and effective unless it takes into account the human factors and objectives that are often hard, sometimes impossible, to quantify.

Accountability and humanism are complementary concerns. Both are necessary to provide high quality health care for everybody at reasonable costs. How can they be synthesized? The key may be in the notion of *effective caring.*

Effective Caring

Effective caring in health services is grounded in the insight that caring for persons – particularly those who are unlucky or unfavored – is the bedrock upon which a humane society rests. It recognizes that until recently effective caring, at least for some people, could be accomplished on a person-to-person basis but that now it must be mediated through organizations that may be large, complex, powerful, impersonal, often unresponsive and even corrupt. The goal of effective caring addresses itself to the challenge that the general quality of life now depends upon how well institutions and organizations serve all the people and that few of them now do very well, if actual performance is contrasted with stated objectives.

Effective caring can provide a category of understanding that reconciles what are admittedly some apparent contradictions. Our society and our institutions have become too complex to be neatly ordered into some single and simple explanation. The physicist has found in the notion of complementarity a way to handle the contradictions of antagonistic theories which must be employed to discuss a phenomenon such as light. The biologist uses a similar notion to work with parts of the field of genetics. The educator must deal with complementarity to handle both individual similarity and individual difference. And so it is in health care. Effective caring is a complementarity. It calls for the discipline of management and technology and the compassion of individual concern. It is therefore the product of trained, competent and committed persons serving in well-managed enterprises. Continuing education is one of the major components of effective caring.

Effective caring is a systems concept. A system is a group of constituent parts that work together as a whole to achieve defined purposes. Every system is part of a larger system and is linked to other systems. It is often convenient to describe a constituent system as a subsystem but there are dangers that must be faced in using system concepts.

Systems are merely constructs, ideas about how things may be related. The carburetor, fuel pump and gas tank, for example, form a system which is a subsystem of an engine. The carburetor is itself a system. Thus what is a system from one point of view is a subsystem from another and what is a subsystem from one point of view is a system from another.

The notion of a system is a very general one. It can apply to the human body (as in the respiratory system), law enforcement (as in police systems or court systems) or transportation (as in highway systems). What gives the system idea usefulness and power is its stress on the themes of purpose and coordination. Systems have purposes and the various components of the system must be carefully related to accomplish these purposes. Effective caring considered as a system highlights the purpose of health care, namely the effective and efficient care of persons. It can lead to the description of the performances which will be the output (or purpose) of the system, to a description of the conditions under which the performance occurs, or which may change or limit the performance, and to the standards necessary for the best coordination of the elements that make the system efficient and effective.

It is useful to think in terms of systems, as we shall see shortly, but it is essential always to be aware that they are abstractions of reality. If the construct is confused with reality, harm may result. The harm results in the failure to see new and creative linkings of components not presently in a system or subsystem. We cannot effectively care if we limit our vision to existing systems. We must constantly seek to have our various enterprises flexibly and voluntarily pool their resources and efforts in new ways to achieve better health care and health-care delivery for all people. This requires constant and primary concern with purposes and elements that cut across and transcend existing systems. These can, of course, be related into new and powerful systems and subsystems.

There are several major subsystems of effective caring that bear on continuing education for health-care workers. Three are considered here.

One subsystem of effective caring may be termed *personal accountability.* This is the humanistic "flavor" observed in the commitment of personnel "to go the extra mile" to care for the powerless and the less favored as diligently and as well as for the powerful and the highly favored. It is shown in the willingness to deal with the "tough problems." It is seen in the candor with which problems are faced, exposed and treated.

Another subsystem of effective caring may be aptly called *professional accountability.* This is made up of the skills, attitudes and understandings that form the knowledge base of health-care services. To effectively care requires that each worker be responsible for both knowing and using those good practices which are the product of research and the state of the art, that the worker take part in the setting of these standards, that he submit to the

measurement of his performance according to those standards, and that he strive to meet them where results show that he is deficient.

The third major subsystem of effective caring is *system accountability.* This is a subsystem which can be looked at profitably as either a part of effective caring or a system that transcends it. System accountability attempts to relate in the most general and persuasive way all of the parts – human, material and organizational – that can be joined to achieve a purpose. It forces the decision-maker to consider in a health-care service system such elements as board members, managers, training institutions, deans and legislators, to name a few, and their joint responsibilities and capabilities in achieving optimal results. System accountability highlights a remarkable change in attitude toward health-care services. This is an attitude of responsibility – the hallmark of effective caring. If the health-care system or subsystem does not attain its purposes as translated by the objectives set for it – if the human beings and the society are not optimally served – the system or subsystem is redesigned or realigned, or renewed or revised, until it does. No one is blamed. At its best, it is treated as a thermostat "treats" the temperature of a room. It is the system's job to provide health care, and if it does not it is changed.

Questions of cost, benefits and financing of continuing education for health care workers are usefully served within the context of system accountability.

Infinite Needs, Finite Resources

Before we turn specifically to system accountability in health care, let us note that the demand for accountability is growing in all areas of public life and note also the reason why. As the nation's economy has grown and our political democracy has widened, the responsibilities assumed by government have kept increasing. We have created an expensive governmental enterprise that is difficult to understand and to evaluate. There has been a growing public awareness of a basic economic concept: *The needs of social services are infinite, but the resources to meet these needs are finite.*

To illustrate, the trend of government expenditures and taxes has been sharply and inexorably upward. In 1929 government expenditures at the Federal, state and local levels amounted to about 10 percent of the dollar value of the nation's production. This fraction rose to about 20 percent in 1940, to about 30 percent in 1960 and to about 35 percent in 1970. There is a widespread misunderstanding of the main reason for this rapid and steady increase in taxation; the main increase of Federal spending is commonly attributed to defense, and more specifically to the war in Vietnam. These are important factors, of course, but the fact is that civilian programs are the main cause of the growth in the Federal budget. Spending for social programs now dominates even our Federal budget and even more our state and local budgets. In recent years we have devoted a growing share of our resources to

a variety of programs to meet social needs. Funds for health, education, welfare, manpower development, civil order and criminal justice – to name only a few – are rapidly expanding in Federal, state and local budgets.

To single out health care, the national expenditures rose from $12.1 billion in 1950 to $67.2 billion in 1970. Most of this increase cannot be attributed to inflation. The comparable increase in percentage of the gross national product was from 4.6 percent in 1950 to 7 percent in 1970. The basic resources on which our health-care system is built – manpower and facilities – have been expanding nearly three times as fast as the population.

Four major factors in addition to inflation have been isolated:

(1) increases in wages for health-care workers such as nurses and attendants who have been traditionally seriously underpaid;

(2) increases in doctors' fees;

(3) increases in overall demand for a variety of health-care services, such as laboratory analyses and hospital care;

(4) increases in health insurance costs to cover more than 70 percent of all wage earners and salaried employees, all the aged, and a significant portion of the poor, although not all of them.

There is little question that as a result of increased dollars, health services have improved in both scope and quality. Nevertheless, there is a feeling on the part of many, perhaps most, citizens that increases in the magnitude of the investment are not resulting in proportional increases in benefits. Despite the markedly increased role of government at all levels, caring for the sick and maintaining those who are well remain largely a personal and private matter. The benefits are very unevenly distributed among the people. Public demand, politically enforced, has made the traditionally private business of health care a matter of great public importance. This demand is successfully challenging the older concept of health care as a commodity, rather than a birthright.

If we are to succeed in making necessary health services fully and fairly available and accessible to all, it will be necessary to deal with a number of complex managerial problems. The contrast between well-managed enterprises and the administration of many health-care enterprises has become glaring. As defects in the organization and distribution of health-care services have become known, the need to shift from administration to management has assumed a matter of urgency. Administration is a truncated form of management. Management involves planning, organizing, staffing, controlling, doing and evaluating. In practice, administration focuses rather exclusively upon staffing and operating. The response to these considerations has been a widespread clamor for accountability for results. A cry has been heard to improve the effectiveness and efficiency of health-care services for reasonable increases in cost. Accountability is seen as the keystone in a program to

increase the productivity of the health-care system. For many it promises to liberate the taxpayer from the intolerable burden of soaring costs, or, at least, to keep the rise of costs within tolerable and justifiable bounds.*

The Dominant Features of Accountability in Health-Care Service

Under accountability, the chief focus is on *output* – the results obtained for resources expended. Modern management strategies and tactics are used. These include the setting of measurable objectives based on documented needs, quality assurance, quality control and cost-effectiveness applications.

What accountability for results means is that those responsible for health-care services state their objectives in measurable terms, choose effective means for accomplishing each objective, operate a program in an efficient manner, objectively disclose how close services have come to achieving the objectives – together with the costs of the achievement – and make the necessary changes in their procedures and manner of operation to close performance gaps. Accountability, it must be emphasized, is not just achieving desired results; it is also achieving them in the most economical way possible. A system is accountable when it can publicly and objectively answer for its use of resources to accomplish defined responsibilities. The capability for achieving system accountability is the central concern of management.

Management is the decision-making and leadership function of a system. In order to carry out this function, management plans, organizes, staffs, operates, controls and evaluates the effectiveness and efficiency of the system in achieving its objectives.

One of the prime capabilities for achieving system accountability is managerial effectiveness. Effectiveness in this context, can be defined as the extent to which management achieves the output requirements of the position. It is management's job to be effective. If this is defined in terms of output rather than input, by what management achieves rather than by what it does or what it uses, system accountability becomes possible. Effectiveness centers on measurable objectives. It is *not* a quality management brings to a situation; it *is* the success of management in achieving objectives by appropriate leadership.

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*It should be kept in mind that the concern for accountability is not limited to the field of health care but is pervasive in all the fields of large public enterprises, such as the military, education and welfare. This pervasive and heightening concern has been influenced by three recent developments: namely, the increasing proportion of the average family's income that is spent on taxes in general, the recognition that a considerable fraction of our population is not well served by the current systems and practices, and the development of management procedures that have increased the effectiveness and efficiency of certain high-interest enterprises, such as the space-exploratory effort. These developments have occurred almost simultaneously, and each has focused public attention on the shortcomings of the present public enterprises, specifically education and health care.

The Management Function

Management is a function, not a unique quality possessed by "leaders." In the conduct of health-care enterprises, it is important that it be seen as a shared function. There are at least four reasons for an emphasis on sharing. First, planning, organizing, operating, controlling and evaluating – the basic elements of the management function – must often be done by cooperating systems in the pursuit of larger purposes even though there is no formal organized "system." Second, the management function must often be done by the coordinated efforts of linked peer-systems in the pursuit of common purposes, even with only loose organization. Third, management as a function within each institution, agency or system must involve the advisory, policy-making and planning bodies, not just the executive team; this point increases in force as public representatives become more numerous and influential in the planning and policy-setting bodies. This third reason highlights why one of the most important continuing education areas in health-care services must be for board members and managers on the fundamental questions of how our present essentially non-system of community health care can be transformed into a publicly responsive system of health-care delivery. Fourth, throughout an organization of institution, it is essential that all the involved components of a system that are being made accountable be aware of what is being done and what the implications are; ideally every group or individual whose performance is being evaluated should have a voice in the objectives that are being set, the standards that are being used to measure deficits, the deficits that are revealed and the measures undertaken to make the deficits good. This point has particular power when personnel are being urged or required to engage in education to meet deficits in performance that have been discovered.

The simplest way to get something done is to do it yourself. When this is not possible and the task must be done through others, leadership is required. When the number of tasks and the number of people who are to help get the job done increase, management is required.

Management, thought of as an identifiable and separate field of study, is relatively immature. It is essentially the product of the last half-century. During this time powerful conceptual tools have been fashioned and field-tested. These tools can arm both lay and professional leaders of health-care enterprises and those interested in their benefits with the wherewithal for allocating resources. This will lead to the securing of desired benefits and to the systematic upgrading of the allocation process and thus improve the benefit yield.

Effective management has a considerable repertory of strategies for problem-solving. Taken together these strategies offer:

(1) the stimulus to challenge traditional assumptions and practices;

(2) ways to improve performance by providing a demanding environment and a set of comprehensible down-to-earth techniques to get desired results; and

(3) quantitative bases to qualitative objectives.

All the strategies center on the achievement of the objectives of the system (or agency or institution). These objectives must be specified in clear, measurable terms. Let us suppose that we are concerned with improving the maintenance of the complex hospital equipment, setting as our objective the cutting of the downtime (inactive time) on specified electronics equipment by 50 percent in a certain time interval. One strategy might be to send our technicians to a local school to take a course or program in this area.

Another strategy might be to employ one person to diagnose problems and have specifically trained persons carry out the repairs in an efficient manner. Other management strategies might be to revise the equipment manuals, to place more stringent requirements for purchase, to require service as a part of the purchase contract and so on.

Before a particular management solution is used, the first step is properly to identify and define the nature of the problem to be solved. The second step is to identify the range of methods available for solving the problem. The third step is to make an assessment of the probable effectiveness and efficiency of the available alternatives and then to choose the most promising ones. Continuing education is only one of the available methods. It is neither an end in itself nor an automatic guarantee of better performance. It should be chosen by itself or in conjunction with other methods only if, after careful definition of the problem and the probable results, it seems appropriate. If it is not appropriate, it should not be used. If it seems appropriate, it should be used and financed as a legitimate method of improving results.

Kaufman[7] has described a systematic approach to problem-solving which is useful to management in deciding whether or not continuing education is the solution of choice. This reasoning process begins by identifying problems based on a documentation of performance gaps between a current measure of the effectiveness of achieving objectives and a desired level. Using the approach, the manager moves rigorously through an analysis of alternatives, a consideration of costs and benefits, the selection of a solution, its implementation, an evaluation of the actual achievement of the desired level and revision as required. Through such a process, a health-care organization can avoid "jumping" to a solution.

I now present a more complete account of the Kaufman strategy. The process applied to determining whether or not continuing education is "needed" starts by identifying what the "needs" really are. A need is best defined as a measurable discrepancy between "what is" and "what should be." The need does not imply or include a solution. It is only a measurable difference, or discrepancy, between a current state of affairs and one that is desired.

The second step consists of describing the requirements for getting from the present condition to the desired one *and* at the same time identifying some possible alternatives for meeting the requirements. Kaufman cautions that the actual selection of an alternative should not take place at this point.

The third step in the process is the actual selection of a solution strategy from among the alternatives. This step includes the selection of the methods and means for meeting the gap between what is desired and what now exists.

The fourth step consists of the implementation of the strategies and tools decided upon in step three.

The fifth step is the determination of how well or how poorly the requirements identified in step two have been met.

The sixth and final step is to "redo" or correct as required. This is the feedback, or the closing-of-the-loop, step and provides the flexibility to correct any or all of the previous steps if the requirements were not met.

Mager and Pipe[10] have developed a systematic approach for decision-making about continuing education. Their thinking can be blended well with the Kaufman model, particularly in the first step. In general Mager and Pipe would have management analyze each problem involving an ineffective performance of a health-care worker to discover if it is a skill deficiency or the result of other factors such as poor management. Their logic is now presented through the following "Quick Reference Checklist," which describes the key issues faced by management and the questions to ask to address the issues properly. This guide can be of inestimable value to management. The checklist appears on pages 101-105 in the Mager and Pipe book.

QUICK REFERENCE CHECKLIST

KEY ISSUES	QUESTIONS TO ASK
I. *He isn't doing what he should be doing.* I think I've got a training problem.	
1. What is the performance discrepancy?	Why do I think there is a training problem? What is the difference between what is being done and what is supposed to be done? What is the event that causes me to say that things aren't right? Why am I dissatisfied?

2. Is it important?

Why is the discrepancy important?
What would happen if I left the discrepancy alone?
Could doing something to resolve the discrepancy have any worthwhile result?

3. Is it a skill deficiency?

Could he do it if he really had to?
Could he do it if his life depended on it?
Are his present skills adequate for the desired performance?

II. *Yes. It is a skill deficiency.* He couldn't do it if his life depended on it.

4. Could he do it in the past?

Did he once know how to perform as desired?
Has he forgotten how to do what I want him to do?

5. Is the skill used often?

How often is the skill or performance used?
Does he get regular feedback about how well he performs?
Exactly how does he find out how well he is doing?

6. Is there a simpler solution?

Can I change the job by providing some kind of job aid?
Can I store the needed information some way (written instructions, checklists) other than in someone's head?
Can I show rather than train?
Would informal (i.e., on-the-job) training be sufficient?

7. Does he have what it takes?	Could he learn the job? Does he have the physical and mental potential to perform as desired? Is he over-qualified for the job?
III. *It is not a skill deficiency.* He could do it if he wanted to.	
8. Is desired performance punishing?	What *is* the consequence of performing as desired? Is it punishing to perform as expected? Does *he* perceive desired performance as being geared to penalties? Would his world become a little dimmer (to him) if he performed as desired?
9. Is non-performance rewarding?	What is the result of doing it his way instead of my way? What does he get out of his present performance in the way of reward, prestige, status, jollies? Does he get more attention for *mis*behaving than for behaving? What event in the world *supports* (rewards) his present way of doing things? (Are you inadvertly rewarding irrelevant behavior while overlooking the crucial behaviors?) Is he "mentally inadequate," so that the less he does the less he has to worry about? Is he physically inadequate, so that he gets less tired if he does less?

10. Does performing really matter?	Does performing as desired matter to the performer? Is there a favorable outcome for performing? Is there an undesirable outcome for not performing? Is there a source of satisfaction for performing? Is he able to take pride in his performance as an individual or as a member of a group? Does he get satisfaction of *his* needs from the job?
11. Are there obstacles to performing?	What prevents him from performing? Does he know *what* is expected of him? Does he know when to do what is expected of him? Are there conflicting demands on this time? Does he lack the authority? . . . the time? . . . the tools? Is he restricted by policies or by a "right way of doing it" or "way we've always done it" that ought to be changed? Can I reduce interference by improving lighting? . . . changing colors? . . . increasing comfort? . . . modifying the work position? . . . reducing visual or auditory distractions? Can I reduce "competition from the job"—phone calls, "brush fires," demands of less important but more immediate problems?

IV. *What should I do now?*

12. Which solution is best?

Are any solutions inappropriate or impossible to implement?
Are any solutions plainly beyond our resource?
What would it "cost" to go ahead with the solution?
What would be the added "value" if I did?
Is it worth doing?
Which remedy is likely to give us the most result for the least effort?
Which are we best equipped to try?
Which remedy interests us most? (Or, on the other side of the coin, which remedy is most visible to those who must be pleased?)

To summarize, effectiveness is the basic criterion of each health-care worker, be he a physician or an ambulance driver. It is defined in terms of results, rather than by the resources used or a particular style of working. It is measured in terms of the objectives achieved. Continuing education is concerned with increasing the effectiveness of the worker. Other means are available for accomplishing this same end. Self-study, varied assignments, job simplification, higher entrance standards, improved rewards, better supervision, and so forth, may be suitable. If continuing education is the solution of choice, it is used solely because it has been objectively determined to be the most effective solution to increasing the productivity of the particular health-care service.

System Approach to the Continuing Education of Health-Care Workers

A system is an articulated set of components working together to achieve a purpose. A health-care organization can be usefully treated as a system composed of subsystems. There may be, for example, a system for feeding patients, for recruiting personnel and for the security of the property. Continuing education is a subsystem consisting of the coordination of learners, methods, media, space and personnel required to achieve one or more valued objective.

Three facets of the system concept have value in financial considerations:

(1) the requirement of the system to accomplish its objectives;

(2) the highlighting of the costs of the functions necessary to accomplish

its objectives; and

(3) the observation that a system can use a variety of alternative means to carry out its functions and therefore can be subjected to cost-effective considerations.

Some Caveats

It bears re-emphasis that the concepts of "systems" and "management" introduced here in connection with continuing education can lead to significant error in terms of the documented needs of society. If we stay within the constraints of systems as they are now defined and operated and fail to extend the system concept to encompass the relationships between the systems of the providers of health care, we will fail to develop an overall articulated system of high quality care accessible and acceptable to all people at reasonable cost. This error will force the continuance of the outmoded concept of health care as a commodity and perpetuate a fractionated, unplanned, wasteful system (or nonsystem) where gaps and duplications exist side by side. The concept of system has to include total resources to fulfill the essential purposes of health care and these purposes must include the well-being of persons in the total society. This is, of course, an ideal goal. Ideal goals, however, are the very essence of the engineering approach exemplified in the systems and management concepts presented here. Engineering is based on the ideal. For example, it starts with frictionless pistons, "ideal" temperatures, "absolute" scales, then introduces reality through coefficients of friction and the like. Always the engineer strives toward the ideal. This is the approach so urgently needed in the social-service areas such as health care.

Through continuing education we can have physicians, nurses, dieticians and all the other health workers perform better. However, unless the basic planners and policymakers – including prominantly the representatives of the public interest – are also regarded as health-care workers, we will be only working on the fringes of a commodity system of health care. Similarly, we will be only nibbling at the edges of the real need unless we include the managers, the deans of medical schools, the department heads, the specialty societies and so forth.

Implicit in the stress made in this presentation on the need to change the prevailing concern from the input to institutions and bureaucracies to a concern for their outputs to the public service is the requirement to deal with large purposes, values and attitudes that challenge prevailing concepts, particularly self-concepts, territorialities, hierarchies of roles and the like. Outcome accountability, described earlier, deals with this requirement because it stresses the three-fold demand for personal commitment, professional and paraprofessional responsibility and system accountability. Each person in an accountable health-care system must be personally committed to the unfortunate, be competent in the good practices associated with his role, and be part of an organization effectively managed to achieve quality control

and quality assurance. By thinking of system accountability in its broadest context, we shall be able to construct of the subsystem a viable whole in the service of the total society.

Effectiveness Standards

Every health-care position has the potential for effectiveness standards. These are the standards by which the performance of the person holding the position may be objectively judged. Such standards can be readily prepared by focusing upon output. Whenever possible, the output descriptions should be quantified. Standards listed in terms of percentages, dollars, and client services, for example, can be transformed into measurable objectives. This permits the health-care service organization to be managed by objectives – a management system valuable in the pursuit of increased productivity.

Increased Productivity

Productivity is increased when one of the following conditions is present: (a) costs are reduced without an accompanying loss in valued results; (b) better results are obtained without increasing costs; or (c) both better results are obtained and costs increase, but the increase in results is greater, i.e., more significant than the increase in costs.

Self-Renewal

At its best, continuing education leads to the self-renewal of organizations. Self-renewal is the process whereby a health organization continually modifies its goals and objectives to meet the needs of its clients and continually modifies its programs to facilitate the attainment of its objectives. Self-renewal requires:

(1) continuous monitoring of the extent to which a program is achieving its objectives;

(2) continuous evaluation of the appropriateness of established objectives; and

(3) continuous identification of alternative policies and practices for consideration.

Self-renewal requires a focus on the goals which a health-care organization should pursue, rather than on the organization as an end in itself. An organization which fails to renew itself is often one which has become preoccupied with its established traditions and practices while giving only secondary attention to its goals. The continuing education program is one of the approaches for attaining desired organization goals.

It is important to stress that the test of self-renewal lies in viewing the process in the largest terms. The probability is high that, one way or another, we are going to get a more rational health-care delivery system in the United States. This will come about either through external imposition or through the voluntary, cooperative and self-renewal efforts stressed in this essay. Self-renewal is the most important kind of continuing education. Few have been conscious of its critical relationship to continuing education and its

dependence upon leadership. One of the most viable ways to secure this leadership lies in the use of development capital – fiscal set-asides – specifically addressed to this purpose as well as the use of accountability policies adopted by governing agencies.

Such policies have been developed in the field of public education. Similar sets can be utilized in the health-care field.

STEPS IN PROVIDING CONTINUING EDUCATION FOR HEALTH-CARE WORKERS

Keeping in mind the caveats described and the notion of the interrelationships of health-care organizations to form the subsystem in system accountability in its broadest sense, a working definition of continuing education can be usefully made: *Continuing education is the process of developing a health-care worker's performance through planned experiences to meet present and future performance requirements of the health organization.*

A decade ago continuing education was equated with formal courses pursued in schools, colleges or on site. The general pattern was for the health organization to circulate information regarding the forthcoming courses and to seek students. The emphasis clearly was to fill the places available. Alas, the general pattern continues. In fact, it is spreading. Every year the August issue of the *Journal of the American Medical Association,* for example, listing courses gets fatter and fatter. There is no evidence that there is either a need for these courses or that they have in fact met a need. There is no evidence presented (or gathered) that they result in better performance of the persons involved in them. The courses are apparently based on the assumption that the basic defects of personnel are in terms of knowledge or skills rather than in values, feelings, attitudes, self-conceptions, interpersonal relations and the like. Discussion with management personnel indicates that the methods employed in these courses too often consist of the traditional funneling of knowledge through the lecture and demonstration. The trend for renewal of licenses or memberships in professional associations puts more and more emphasis upon this traditional pattern either through the "stick" of the requirement to renew licenses or society membership or the "carrot" of special awards. Even the traditional courses can be improved by attention to the full dimensions of the cognitive domain. I have analysed the taxonomy of the cognitive domain against the essential elements present in courses, i.e., teachers, students, methods, materials, time and place. I now present my analysis.

The Taxonomy of Educational Objectives[2] is a device which provides a larger view of the nature of the educational task in learning subject matter by establishing a comprehensive descriptive system. Once understood and put into practice, instructors gain new insights into teaching practice and a surprising power to generate questions in an orderly manner around parts of the subject they wish to examine.

The Dewey Decimal System to classifying books and the system of describing biological phenomena are well known examples of taxonomies. One readily locates or files a book, knowing the Dewey Decimal System; one expertly describes a biological speciman in terms of its phylum, class, order, family, genus, species and variety, using the biological taxonomy. Indeed, the very heart of science is communicable description.

The Taxonomy of Educational Objectives attempts to classify all the educational objectives which deal with the recall or recognition of knowledge and the development of intellectual skills and abilities, i.e., the cognitive domain. This domain is classified in such a way that each successive category is built upon and dependent upon those which are its predecessors. Each category, in turn, is ordered from the specific to the general, from the concrete to the abstract. Thus, the Taxonomy is set up in a hierarchical arrangement, although it is readily conceded that there is much overlap and shading between categories.

The first category is "knowledge." Virtually all that we commonly mean when we speak of the knowledge in our subject fields may be described in terms of the specific items of information, the terminology, the facts, the ways and means of dealing with facts and information, the conventions used in treating subject phenomena, the criteria, the methodology, the principles, generalizations and theories of the respective fields. This knowledge we call basic, the stuff of our disciplines, and we attempt to have students gain this knowledge through a variety of techniques and materials. Without knowledge, there can be no learning of our subjects; hence it is not surprising that knowledge forms the first category, the base of the pyramid, the prime element in the Taxonomy. The knowledge gained is supposed to be remembered. Teachers test for the retention of this knowlege by asking questions (either objective or essay) which require a student to recall or to recognize material previously covered in the course.

The major contribution of the Taxonomy lies not so much in classifying the area of knowledge, which is well known to all teachers; rather, the contribution comes from the delineation of the intellectual skills and abilities by which one is supposed to understand, apply, analyze, synthesize and evaluate what is learned.

For example, a student may learn that ontogeny recapitulates phylogeny. This is clearly at level one in the Taxonomy – knowledge of a principle or generalization. The teacher may test this knowledge by constructing a true/false item reading, "Ontogeny recapitulates phyogeny." The student may answer "true" and be marked correct, *but he may have no idea at all what is meant by the principle;* that is, he may not comprehend what the principle "means." The second element, or major category, of the Taxonomy, therefore, classifies an area of the cognitive domain called comprehension. Most teachers would readily agree that knowledge without comprehension is quite ineffective.

The second category is "comprehension." Three intellectual skills comprise the category "comprehension": translation, interpretation and extrapolation. Putting this classification into operation, the teacher may ask the student to state in his own words what is meant by "Ontogeny recapitulates phylogeny" (translation); or give a view of the phenomena which the principle orders (interpretation); or indicate the implications or consequences of the principle (extrapolation). Most biology teachers would think that their students really knew that ontogeny recapitulates phylogeny if, in addition to merely recognizing or recalling the principle, they could demonstrate that they comprehended it.

The third category of the Taxonomy – application – is an important extension of the notion of comprehension. Here one describes the use of abstractions, rules formulas, principles and generalizations to solve new problems, to understand novel situations. All that is necessary for the solution or comprehension (Level 1 and 2 of the Taxonomy) is incorporated by the student; here he is asked to apply what he knows to a situation he has not formally encountered in the course. Thus the pupil may know the quadratic formula (Level 1); he may be able to state the formula in his own words (translation); he may be asked to solve a quadratic equation generated by the path of a bomb (application). Memory is a basic ingredient of application but it necessitates still "higher mental functioning" for success in putting to use what one has learned.

The fourth category of the Taxonomy describes these intellectual skills required to dissect or break apart a given segment of knowledge into its elements or constituent parts. This is the familiar process of analysis. The student is called on to fulfill this objective by indicating how knowledge (Level 1) is organized, i.e., the relationship between the ideas it incorporates, or the way it manages to communicate its effects, or the basis of its development. Test questions involving analysis assume knowledge (Level 1), comprehension (Level 2), and application (Level 3). Category 4 – analysis – is a blending of all three lower levels in an attempt to penetrate the essence or structure of phenomena.

The fifth category – synthesis – logically follows the four predecessors. Having analyzed, one is now called on to put the elements and parts together to form an arrangement or pattern not clearly evident before. The well-designed term paper can be a good example of Category 5 – synthesis. In fact, the authors of the Taxonomy have this clearly in mind by their description of one of the subparts of Category 5 – Production of a Unique Communication.

The sixth and final major category of the Taxonomy forms the apex of the cognitive domain pyramid. It orders the highest, most prized learning judgment. Labeled "evaluation," level six of the Taxonomy describes those educational objectives involving critical thinking and judgment, rendered on the basis of internal and external criteria.

Students able to render well thought-out evaluations may be said really to know or understand what they have been taught or have discovered.

Evaluation (Level 6) involves all the previous five. It is a prelude to the most complex and difficult ability of all – wisdom, which, if attained, is the fruition of all a person's endowments and achievements.

This section can be summarized by a bare-bone outline of the six categories and their component parts:

1.00 Knowledge
- 1.10 Knowledge of Specifics
  - 1.11 Knowledge of Terminology
  - 1.12 Knowledge of Specific Facts
- 1.20 Knowledge of Ways and Means of Dealing with specifics
  - 1.21 Knowledge of Conventions
  - 1.22 Knowledge of Trends and Sequences
  - 1.23 Knowledge of Classifications and Categories
  - 1.24 Knowledge of Criteria
  - 1.25 Knowledge of Methodology
- 1.30 Knowledge of the Universals and Abstractions in a Field
  - 1.31 Knowledge of Principles and Generalizations
  - 1.32 Knowledge of Theories and Structures

2.00 Comprehension
- 2.10 Translation
- 2.20 Interpretation
- 2.30 Extrapolation

3.00 Application

4.00 Analysis
- 4.10 Analysis of Elements
- 4.20 Analysis of Relationships
- 4.30 Analysis of Organizational Principles

5.00 Synthesis
- 5.10 Production of a Unique Communication
- 5.20 Production of a Plan, or Proposed Set of Operations
- 5.30 Derivation of a Set of Abstract Relations

6.00 Evaluation
- 6.10 Judgments in Terms of Internal Evidence
- 6.20 Judgments in Terms of External Criteria

The Taxonomy is not only a product of creative thinking. Thoroughly understood and mastered, it can provide a tool for a creative approach to course construction and teaching. To be sure, teachers have known and utilized all the elements which comprise the Taxonomy; its designation as creative derives from the fact that it is a careful organization of previously unrelated things – as apt a definition of creativity as is currently available. The following chart illustrates the variety of roles taken by students and teachers together with the mix of methods, materials, time and place.

AN ANALYSIS OF FACTORS INVOLVED IN CONDUCTING A COURSE IN CONTINUING EDUCATION

TYPES OF LEARNING	WHAT STUDENTS DO		WHAT TEACHERS DO	
	Activity	Tangible Outcomes	Activity	Tangible Outcomes
MASTERY OF SUBJECT MATTER	Respond Absorb Remember Rehearse Cover Recognize	Objective test results Complete program learning sequences	Direct Tell Lead Show Delineate Enlarge Examine	Objective test Programmed materials
COMPREHENSION	Explain Demonstrate Translate Extend Interpret	Short essays Objective test results	Demonstrate Listen Reflect Question Compare Contrast Examine	Objective test Essay tests
APPLICATION	Solve novel problems Demonstrate use of knowledge Construct	Problem-solving tests Construct equipment	Show Facilitate Observe Criticize	
ANALYSIS	Discuss Uncover Detail List Dissect	Experimental write-ups Precis Outlines	Probe Guide Observe Act as a resource	
SYNTHESIS	Discuss Generalize Relate Compare Contrast Abstract	Term papers Blueprints Sets of plans	Reflect Extend Analyze Evaluate	Reading lists Specialized questions
EVIDENCES OF EFFECTIVE LEARNING BY EVALUATING THE GROWTH IN QUALITY OF STUDENT PERFORMANCE (ACCORDING TO THE APTITUDE, POTENTIAL AND ABILITY OF EACH INDIVIDUAL)	Commit Judge Dispute	Critiques Essays Speeches Projects Performances (athletic, musical, artistic)	Acceptance Lay bare the criteria Harmonize	Debates "Global" problems Competitive essays Project constructions–shop Speech tournaments Structural ideas (Bruner)

APPROPRIATE ORGANIZATION AND LOCATION

Methods Used by Teachers and Students	Materials Used by Teachers and Students	Times Used by Teachers and Students	Places Used by Teachers and Students
Lecture Drill Recitation Objective test Homework	Textbooks Programmed materials	Formal Regularized	Large group Classroom
Objective test Essay test Recitation Socratic dialogue	Audio-visual materials Television Natural phenomena	Formal Regularized	Classroom Typical group
Laboratory Shop Homemaking center Stage Project Quiz Contests Field visit	Building materials Shop equipment Lab equipment	Informal Regularized	Laboratory Shop Field Station Small group
Seminar Discussion Group critique Independent Study Precis writing	Books (non-texts)	Informal Irregular	Cubicle Laboratory Seminar room Home
Term paper Essay Planning Project Consultation Seminar Independent study	Collection of books	Formal Irregular	Library Home Seminar room Concert hall Museum Laboratory Small group
Seminar Panel Outside lecturers Debates	Essays Journals	Informal Irregular	Seminar room "Coffee shop" Small group

Directors of Continuing Education

Evidently there is movement toward placing the continuing education program responsibility in the hands of personnel departments – often with a director of continuing education and related activities. Unless management regards continuing education as a management function and backs it up as such, this movement will not get us very far. Good health care is good continuing education; good continuing education is good health care. Institutions are legally responsible for the quality of care and hence for efforts to see that quality care is provided. Until this concept and practice get into the bloodstream of the institutions and bureaucracies, continuing education will remain a kind of frill, or at most a series of episodic activities unrelated to accountability. Such was the actual situation my assistant* and I found in a series of field interviews and visits made in connection with the preparation of this chapter. The interviews and on-site visits were completed in the Southeastern part of the country. There is reason to believe that the findings can be generalized to other parts of the country. Seven questions were explored under the general heading of accounting for the costs, benefits and financing of continuing education activities. The questions are as follows:

(1) What is your present practice in accounting for continuing education funds?

(2) What are your present sources of continuing education funds?

(3) What are your current methods of accounting for the benefits accrued through continuing education programs?

(4) What is the current status of obtaining funds for continuing education programs?

(5) What do you consider in the category of continuing education?

(6) What sources for continuing education programs do you use?

Agencies contacted included a regional medical center, two large metropolitan hospitals and a medium-size rural hospital. The data are presented under each question according to source, as follows:

RMC – regional medical center
MH1 – large metropolitan hospital number 1
MH2 – large metropolitan hospital number 2
MSH – medium-size rural hospital

Question #1: *What is your present practice in accounting for continuing education funds?*

RMC

Funds are placed in a budget category entitled "Continuing Education." In 1971-72, about 26 percent of the budget for the entire region was allocated

*I am indebted to Mrs. Connie Mayrhofer for helping in the interviews and on-site visits.

to this category. Some 60 to 70 individually-funded activities have come under this section during the life-time (about four years) of this agency. Length of time involved in the activities varies from one hour to ten days or longer. Records are kept of the number of people attending each type of program, together with the expenses incurred by the training institutions and/or persons.

MH1

Projects are written up individually; costs are broken down into (a) books and materials and (b) number of employees and number of hours trained. A dollar figure of $3.50 was given as the per-hour cost of training. A miscellaneous category to cover classroom space, maintenance and replacement of equipment, reference books and periodicals is included. All new employees are given one free lunch with orientation. Preretirement orientation includes two free dinners on the continuing education budget.

MH2

The coordinator of continuing education turns in a monthly summary of hours spent in training and the number of employees trained.

MH

All departments are supposed to send in a continuing education form to the director of continuing education when they use their budgets for this purpose – but they do not. Each department keeps its own records of the people it trains and the costs incurred. Travel and seminar requests are granted through department budgets, often to the same people.

Question #2: *What are your present sources of continuing education funds?*

RMC

Sources of funds were listed as follows (no dollar figure breakdown was available at the time):

A. Federal Sources: 1. Health Manpower Act of 1968; 2. Allied Health Professional Personnel Training Act of 1966.

B. State Sources: 1. medical schools; 2. colleges and universities; 3. community colleges; 4. vocational education programs; 5. high schools.

C. Local Sources: 1. local school boards; 2. community hospitals; 3. taxes from local taxing agencies.

D. Private Sources: 1. hospitals; 2. insurance companies; 3. pharmaceutical companies; 4. foundations and assorted groups; 5. patients; 6. health-care workers; 7. private schools and colleges.

MH1

Total Budget 1971-72 – approximately $33,000,000; 50 percent of the funds came from property taxes and 50 percent from Medicare, Medicaid, patient fees, patient insurance and endowments. Continuing education budget for 1971-72 was $76,919. Some departments have their own continuing-

education activities. The coordinator does not know what kind of budget he has in advance and does not know all the activities being carried on in this area.

MH2 Sources not available to the director.

MSH Sources not available to the director.

Question #3: *What are your current methods of accounting for the benefits of continuing-education funds?*

RMC

Number of persons trained.

MH1

No defined method. Written suggestions are sought at the end of some classes. Pretesting and posttesting to begin in the future in some aspects of the program.

MH2

No defined method.

MSH

No defined method.

Question #4: *What is the current status of obtaining funds for continuing-education programs?*

RMC

The present budget for the category of continuing education has declined from 59 percent of the total budget in 1968-69 to 26 percent in 1971-72.

MH1

The continuing education director writes up a project when requested to by a department head or several supervisors. Money may then be "found" from the general fund to support an approved program.

MH2

Budgeted through the personnel department. Records not available.

MSH

A year ago management planned to place all continuing education funds in one department under the director. Budget amount was to be $300,000. This apparently "frightened" budget approvers as making the funds too vulnerable for cutting, etc. Decision was made to put the money back into separate departmental budgets at the rate of $2 to $3 per employee.

Question #5: *What is considered in the category of continuing education?*

RMC

"Those educational endeavors which are above and beyond those normally considered appropriate for qualification or entrance into a health profession or an occupation in a health related field."

"Grant funds may be used for innovative training approaches and the development of new types of health personnel or new arrangements of health personnel." Examples given – Physician's Assistant Development Program; health-careers counseling program to disadvantaged students.

MH1

Basic English, basic math, self-defense for women employees, consumer education, preretirement orientation, rapid reading, hospital orientation.

MH2

Management training, public relations training.

MSH

Supervisory and executive development.

Question #6: *What sources for continuing-education programs do you use?*

A composite of those interviewed reveals the following:

1. Universities, colleges, community colleges, technical and vocational schools;
2. Hospital staffs;
3. Public utilities;
4. Local businesses;
5. Fire and police departments.

In these interviews and on-site visits my assistant and I found dedicated people, eager to cooperate and anxious to see improvements in their programs. However, we did not find continuing education either conceived as a means integral to the end of quality health care or practiced in ways that permit the measurement of effectiveness and costs. Thus not only can resources expended in continuing education not be accounted for but also the advisability of the initial expenditure of resources cannot be determined. There is reason to believe that these findings in the Southeastern part of the United States can be generalized to other parts of the country.

ENGINEERING THE CONTINUING EDUCATION FUNCTION

To review, the basic mission of continuing education is: (1) to improve the performances of personnel in line with organization objectives and (2) to identify and then train personnel with the potential to meet the future needs of the organization.

The program can be engineered in the following steps:

(1) Define the job requirements in performance terms;

(2) Identify the knowledge, skills and attitudes required to achieve the job performance standards;

(3) Identify the deficiencies of persons holding the jobs;

(4) Develop a list of training objectives for specific persons;

(5) Search for the most cost-effective means for the employee to obtain the objectives.

If a continuing-education program is the solution of choice,

(1) Prepare a set of valid and clearly-stated measurable objectives for the program;

(2) Develop criterion tests to measure the attainment of the objectives;

(3) Embed the content required to enable the student to obtain the objectives in appropriate media, applying the appropriate principles of learning;

(4) Test and revise the program until the learners achieve the objectives according to the standards established.

At all stages in the process of identifying and meeting continuing education needs, the health-care workers concerned should be involved in:

(1) Clarifying the job-performance standards;

(2) Formally reviewing the worker's present performance;

(3) Planning for the actual participation in the program in relation to the worker's needs and the organization's objectives.

It should be clear from the above that such an approach is performance-oriented, uses participative management and is evaluated against objectives.

Cost of Continuing Education for Health Care Workers

A matter of major significance to management is the development of a suitable cost-accounting system for continuing education programs. Careful study of the limited literature in this field, as well as interviews and on-site visits, reveals that currently this is a rather difficult matter.

Costs may be divided into two broad categories – direct costs and indirect costs. Direct costs are those associated specifically with a continuing education program. These include administration of the program, instruction, materials for instruction and equipment. Indirect costs are those which can be fairly attributed to the program. These include services provided by the organization such as maintenance of facilities, the use of facilities and utilities. One factor that should always be taken into account is the cost of released time for participation in the educational/training experience. Sometimes such can be reckoned as direct costs, where extra payment must be made to the participant or to his or her replacement; sometimes such costs must be reckoned as indirect, where no money payments but onorous adjustments of schedules, hours or duties are involved. In either case, a realistic assessment should take such costs into account, else resistance will be fostered – by the supervisors, the learners or the fellow workers.

Tracey[12] has developed a Cost Analysis Form which is very useful in the development of a cost-accounting system.

Jones[6], Kollin[8] and Arzigian[1] have each contributed insights into the problems and opportunities for assigning costs to training programs. The most thorough study found was made by Jolley and Caro.[5] They made a comparison of the costs of instrument flight training versus synthetic

instrument flight training during the interval of one month. Their analysis includes both direct and indirect costs.

Cost and Effectiveness

Management is concerned with both cost and effectiveness. Without reference to effectiveness, cost has little meaning. The key to relating costs and effectiveness lies in the objectives. The basic indicator to be computed is the cost per objective obtained per student. This measure reflects adequately the major variables of a continuing education program and makes it possible to determine the cost-effectiveness for comparable objectives achieved in alternate ways.

A large item of cost occurs in the design and development of an adequate instructional system consisting of a set of instructional objectives, a series of tests to measure the degree to which the instructional objectives have been met by students and the methods/means to be employed in achieving the objectives. The objectives must be developed from a systematic analysis of the necessary tasks to be performed, followed by the reduction of each task into its required behaviors and an evaluation of each behavior's criticality for the effectiveness of the position.

Instructional objectives can be classified into two categories – *performance objectives* and *enabling objectives*. Performance objectives are those behaviors the worker must exhibit if the purpose of the continuing education program is to be attained. Enabling objectives reflect a detailed description of the knowledges and skills the student must possess in order to meet the performance objectives.

With the acquisition, both of an instructional system and a cost-accounting system, the following measure can be computed:

1. *System Effectiveness*[11] – the ratio of the total number of performance objectives achieved by all students to the product of the total number of objectives measured and the total number of students.

$$S = \frac{O}{TN} \times 100,$$

where S = system effectiveness;
O = number of objectives achieved by all students;
T = number of objectives tested;
N = number of students.

Using similar logic, it is possible to develop a measure of the effectiveness of portions of the instructional system. Unit cost calculations can be developed. Some examples follow:

a. Cost per student = $\frac{\text{Total Cost of Program}}{\text{Number of Students per Fiscal Year;}}$

b. Cost per Hour = $\frac{\text{Total Cost of Program}}{\text{Number of Hours of Instruction per Fiscal Year;}}$

c. Equipment Cost per Student $= \frac{\text{Total Cost of Equipment}}{\text{Number of Students in x Years}}$

Where x = Projected Life of Equipment

d. Materials Cost per Student $= \frac{\text{Total Cost of Materials}}{\text{Number of Students}}$

The "total costs" in the formulas above should be realistic, taking into account both the direct and indirect costs – not forgetting the costs, direct or indirect, or both, of released time for the participants, mentioned earlier.

Having appropriate cost-effectiveness data opens up productive ways for improving system efficiency. Efficiency is the ratio of output to input. It can be improved by increasing the number of students who obtain objectives and/or by lowering costs. Careful analysis will highlight particular areas in which cost-reduction efforts may be especially fruitful.

2. *Program Budgeting* – a subunit of a systematic and comprehensive approach to the study of an organization's activities. It lies at the heart of what is termed a Planning, Programming, Budgeting, Evaluation System (PPBES). In brief, under this system overall goals and objectives for the entire organization are planned, alternate programs are specified, resources are allocated for the achievement of objectives and an evaluation is conducted to determine the effectiveness of the programs in achieving results. The discussion of continuing education taken here is consistent with a PPBES approach. A growing literature is available on the optional development of PPBES for organizations. Hartley[4] provides a good basic reference.

Financing Continuing Education Programs

The nature of the health-care system is such that financing continuing education programs for health-care workers is a joint concern of the Federal, state and local levels.

The design, development and dissemination of good practice in continuing education is both difficult and expensive. It would seem advantageous for this to be done under the aegis of the Federal partner.

"Good practice" may be defined as an idealized learning and management system which is both reliable and valid. Many examples of good practice in continuing education are available and more will be needed to be developed through research efforts. The process of translating good practice into prevailing practice in the hospitals and health care centers may be called *educational engineering*. There are two basic components to educational engineering; entrepreneurship and systematic improvement. Each is now briefly described.

Entrepreneurship – Energy is required to move from a steady state to a new equilibrium. In social systems this energy is development, or venture, capital. The setting aside of development capital and its management through

technical management support service, bidding, performance contracting and accomplishment auditing is a working process for translating good practice into prevailing practice. A more detailed description of the use of development capital is available in one of my previous works[9].

Systematic Improvement – The other face of educational engineering consists of an orderly and interrelated sequence of steps by which good practice becomes optimized prevailing practice. Through extensive review of Federal projects designed to reform education, I have found an optimal process to consist of the following steps:

(1) Adaptation – altering the model practice to fit the constraints of the setting in which it is placed without compromising the practice;

(2) Adoption – describing the adapted practice for inclusion into the system; this involves appropriate "marketing" and "advertising" strategies;

(3) Installation – providing logistical support in the form of training, management services, materials acquisition and the like;

(4) Formative evaluation – checking and changing the good practice as it is installed until it conforms to the design that was adapted and adopted;

(5) Summative evaluation – evaluating the productivity of the new practice against standard practice;

(6) Dispersion – spreading the good practice from its pilot or experimental status. This will generally involve an iteration of steps (1) to (5) above;

(7) Optimization – protecting and maintaining the new equilibrium against the normal and expected tendency to return to its previous state until it becomes regular and prevailing practice.

Once the advantages of this procedure are recognized, where are the local and state units going to get the necessary funds? Apart from foundations and other private sources, development capital must come largely from three sources: the local, the state, and the Federal level. In the case of local funds, the governing group can simply set aside a percentage of the budget or, where the budget is being enlarged, specify additional funds as development capital. It is interesting to note that industry regularly sets aside 3 to 15 percent for this purpose.

At state and Federal levels, legislators will need to provide such capital. Florida[3] has pioneered such an approach for the improvement of education. When new programs succeed in producing a given rise in effectiveness for less than the old program cost, all or part of the saving might be applied to further development as in other successful enterprises.

Some funds at the Federal level should be applied to high-risk investments, at least in part, for this is the only level of government that can ordinarily afford to commit large sums to basic research and development. In addition, the Federal government should support a continuing search for successful practices around the nation. This in fact has already begun in the Regional Medical Centers.

Educative and Celebrative Experiences: A Complementarity

Of necessity the exposition of continuing education has centered on training experiences. But it would be an error not to consider, if only in brief, educative and celebrative experiences. These are particularly important in the context of the concerns expressed here for the achievement of the larger purposes of health-care delivery systems and the critical nature of the affective areas in actually developing a total system of health-care delivery to serve the individual and the society as a birthright and not a commodity.

As we have seen, two themes share the spotlight in discussions of the urgent need for health-care improvement: *accountability* and *humanism*. The two themes are complementary; they differ one from another and at points they are in conflict but *both* are necessary to make substantive improvements in health care.

There are many examples of complementarities – many fields in which independent concepts brought together make up a whole which produces effects together different from those produced separately.

In physics, the theory of light as a wave phenomenon and the theory of light as a quantum of straight-line particle phenomenon must both be used to explain light even though this introduces contradiction.

In genetics, genes produce effects in concert different from those produced by a gene operating independently.

There are complementary notions in health care. People differ in their ability to afford health-care services but all have the same needs for the best services available. To deal with only one horn of a complementarity is to do injustice to the human condition. To deal with both simultaneously, even if this involves the tension which must be resolved in a "figure-groundish way"* is the essence of the power of the complementary concept in social systems.

When things are complementary they make up a more perfect whole than either one can possibly complete separately. Accountability and humanism are complementary.

"Accountability" means the continuing assessment of the health status of persons in the society; the relating of the levels of these status to the goals and expectations of the nation, state and local community, to the resources allocated, and to the techniques professionally employed for facilitating health care; and the full dissemination of the findings and analysis to the taxpayers and citizens.

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*"Figure-ground": noun from psychology, meaning a "property of perception in which a field is divisible into chiefly two reciprocally influencing parts of varying distinctness and articulation, each dependent upon the focus of attention for clarity." An example would be an "ambiguous figure," which, looked at with one focus of attention, is a vase, and, looked at with another, is two facing human profiles.–*Editor's note.*

"Humanism," like accountability, is a mind-set or point of view. Unlike accountability, it eschews scientific and analytic tools and processes to implement its "world view." Humanism is a concern for human progress, welfare and growth. The sanctity of the human being is held to be paramount. Humanists emphasize the affective side of the human condition, valuing feelings, playfulness, joy, the natural unfolding of human potential and the celebration of the state of being human.

In his approach to working with persons, the humanist prefers the informal, the warm transaction, the unspecified and the open-ended. He denies that important ends can be measured, or even accurately described – maintaining instead that description itself and most certainly measurement inevitably and inexorably destroys what is latent and is therefore dehumanizing.

The humanist is comfortable with inspirational goals which he is able to internalize as objectives for a warm, responding professional in rapport with those he would serve.

As we have seen, accountability is best described as precise, planned, technological, formal and scientific, whereas humanism is best described as informal, spontaneous, flexible, open and joyful. Is it possible to unite such divergent concepts in any meaningful sense?

If the notion of uniting signifies reconciling or resolving the basic antagonism, the answer must surely be no. If, on the other hand, the notion of uniting means to bring the concepts to bear on an agreed-upon problem and approach to solution in some dynamic "gestaltic" way, the answer may be more hopeful.

Perhaps the key is represented by the phrases "documented need," "caring" and "follow-through-fact." Let us examine each.

Documented Need

Both the humanist and the accountabilist can and do agree on real problems facing persons in securing adequate health care. They can agree that health-care organizations are often "mindless," "joyless" and ineffective. Both can attest to the requirement to have fundamental reform and renewal. Both start, then, with a similar desire to change from "what is" to "what ought to be." The accountabilist differs only perhaps in his desire to document the precise extent of the gap between what is and what ought to be and to frame that need in a special language called performance objectives.

Caring

Whatever else characterizes humanism, it most certainly centers on caring – on concern for the human being. In our society, caring has a special focus: the powerless, the less able, the widow, the orphan, the underprivileged, the one in greatest need, and it is done through institutions. The humanist and

the accountabilist both care. The humanist uses his personhood to meet his concern; the accountabilist tries to develop alternative systems to discharge this concern. It is in the *process* of caring that the two sharply differ. The accountabilist would see the humanist "solution" as merely one solution from among other possible solutions; the humanist would not.

Follow-Through-Fact

The sharpest divergence between the two mind-sets centers on results. The accountabilist insists that process be validated by results, that if a result does not obtain, the process must be revised until it does. Perhaps the humanist may be persuaded to monitor, in some existential way, a solution which the accountabilist deems successful. If this solution is humane it may be approved. Is such a happy state possible? An analogy with another field may be helpful here.

Major violin concertos contain a cadenza which has no notes. This allows the virtuoso to express his unique talent within the framework of the entire composition. Consider the fiddler who would play such a concerto. He might do an adequate job expressing the purpose of the composer while playing the notes but would have great difficulty where there were no notes. Is not the price of openness and spontaneity in this case the cost to the player to achieve high discipline and competence? Might not the fiddler who had practiced five variations be able to do a somewhat creditable job on the special cadenza? Is this perhaps a clue to the complementary nature of humanism and accountability – the achievement of the desires of the humanist as a function of this professional accountability?

The Health Care Worker as a Performing Artist

Perhaps the full impact of the complementary nature of the two concepts resides in the notion of health-care serving as a performing art. Generally the humanist uses the expression "service is an art" to indicate that service cannot be attacked in a scientific manner. But if it is a performing art requiring the discipline, insight, charisma and humane characteristics of the performing artist, may it not be possible to speak about the accountability of the artist to produce art? And does this not open the door for some powerful new insights and energy which might achieve the ends so urgently sought by both humanist and accountabilist?

Toward Thoughtful and Caring Learning Experiences: A Humanistic and Accountable Complementarity

It is through the vision of professionally accountable performers willing to work in both formal and informal situations that the valued reform acceptable to both the humanist and the accountabilist may transpire. The

following models of continuing education experiences may illustrate this in action.

It is proposed that in its essence continuing education consist of a mix of formal and informal training, educative and celebrative experiences – each constructed to serve different ends and each end described as precisely as possible to achieve the state desired. For those ends framed as skills and measurable behaviors, training experiences can be built. For those ends for which there are intrinsic rewards or generalized ends, educative experiences are appropriate. And for those adventures of the spirit in which the main purpose is to enable or to give thanksgiving or express joy in humanity, celebrative experiences are appropriate. Can such experiences be contrived? I think yes.

After all, we celebrate, for the most part, those accomplishments and events which overcome the odds, which involve risks. The greater the odds, the greater the risk, the greater the celebration. We celebrate a birth, not a death. We celebrate a marriage. We celebrate the attainment of a valued job for which there was great competition. We celebrate our nationhood. Perhaps the ultimate celebration is seen in the Catholic mass, where the triumph over the greatest risk of all – death – is witnessed in thanksgiving. On a smaller but no less valued scale, we can take on high-risk patients, work successfully with the powerless, discharge our stewardship for those with highest challenge and get others to do likewise. And in so doing we overcome odds and experience the concomitants of the celebrative experience which William James described as a "mystic experience" and Freud held to be an "oceanic experience." Perhaps this is the real reward for being personally, professionally and systematically accountable.

Summary

Caring about human welfare and happiness – what many mean by the term humanism – is a relatively recent phenomenon. Consider the subject of pain as merely one example. We have only to look back 200 years to see that the general tendency of mankind was to inflict pain, not to prevent it.

History teaches us that man has usually been tolerant of pain, especially in others. The revolt against disease was slow, that against pain was slower still. In our delivery of health care to the total society, we are where medicine was a century ago, we are inured to the pain of incompetence; we are willing to accept economic status as being as fixed as an "incurable disease" and unwilling to answer for our stewardship of each person's health status. We seem unwilling to assume a personal commitment for the less fortunate and to be professionally accountable in terms of whatever our art and science can contribute. In short, we are unaccountable for the basic foundation for the flowering of the human condition: individual worth and dignity. Perhaps accountability for results realized through accountable and humanistic complementary systems can lead to reform.

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The Use of Analytical Techniques to Determine Health Manpower Requirements for Educational Planning —or How Do I Find Out What Skills and Knowledges to Teach?

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INTRODUCTION

All health-manpower services are the results of one or more persons applying specific knowledges and skills to any given set of health problems. These knowledges and skills are learned more or less systematically in the classroom and by practice. Therefore, health-manpower services are always the end product of education and training except for those constraints imposed by the job. Sometimes these constraints are a matter of law (nurses are forbidden to fill prescriptions but they are permitted to administer dosages). Sometimes the constraints are a matter of simple economics. These very real economic limitations exist because all health manpower is rooted squarely in the payment-for-services cycle. One of the grim and sad realities of our civilization is that if there is no money to pay for a health service it will not be provided, regardless of the apparent need. In this aspect also effective health-manpower training that is given or requested is also the end product of economic demands: When the training is unrealistic in that respect, everyone suffers: The patient's hopes are crushed; the student's skills lie dormant; and the teacher wonders why nobody warned him of this exercise in futility. Therefore, it is always wise to glance at the economics involved before planning for any primary or continuing education of health manpower.

In order to plan the teaching of the skills and knowledges needed by a health worker, the educator needs to know several things: (a) the kinds of occupations now engaged in the same or similar work, (b) the exact knowledges and skills required by the group of workers in the function under consideration, and (c) the numbers of persons that need to be trained. Armed with pertinent questions in these areas the educator sets forth to learn the answers—and promptly encounters a sea of conflicting claims and reports that seem to stretch as far as the eye can see. Clearly a wealth of information exists in all three areas but it is a rare day when any of it corresponds or even generally agrees with any other.

The purpose of this chapter is to minimize that confusion and provide stable reference points for educators in developing the training needed by any health-manpower workers. Put another way, it is intended to clarify four points of perplexity, often heard as the following queries: How do we select what we need? What about all these numbers? What do they mean, "analysis"? and How did all this get into education?

The following pages outline what we as health professionals and educators ought to know about the kinds of information available to us and about the available tools that we may wish to modify for our own use, and they suggest the most rewarding routes to the information we need in our own determinations of the knowledges and skills that must be taught. Often these routes go near or through methods developed in fields quite unrelated to health manpower, for our colleagues in other endeavors have much to give us in terms of manpower analytical techniques. In return, I think we will be able to give them much of value in developing their training skills.

History of Manpower Techniques

Dissatisfaction with work methods and training procedures is as old as mankind. Likely, the man who invented the wheel had to endure gutteral grunts from some primitive analyst who thought pulling objects ought to be still easier. At the dawn of history ancient Sumerians were highly critical of the education their children were receiving and made stinging comments about it on stone tablets. Much later the Greeks moved from criticism to analysis and carried that to a high level of artistry. With each little attack that remained persistent, both educational and work methods gradually changed for the better. By the time of the Middle Ages, early vocational education began to come into its own with the formation of the crafts and guilds, and helped produce some of civilization's greatest artisans. Viewed from that standpoint, it is interesting to conjecture what might have happened if, say, Cellini had been apprenticed to a goldsmith who did not know the rudiments of teaching.

Manpower studies as such began to appear as an aftermath of the industrial revolution but they did not assume much importance as a separate field of knowledge until the last century. Worth noting today are two engineers who introduced and effected some ideas that were startling and sometimes shocking to most of their audiences. Many of our present practices trace directly to two giants: Charles Babbage first saw the advantages of a planned "division of labor" (he also invented the Difference Engine, the 19th Century prototype for computers), and Frederick Winslow Taylor introduced time studies and piece-work payments. A few years later Henry Laurence Gantt introduced the bonus plan for work, as well as the planned training of workmen "in habits of industry and cooperation." Somewhat later Frank B. Gilbreth developed and augmented the earlier work, and found that scientific

investigation will usually show "one best way to do work." (Gilberth earned another kind of fame when two of his twelve children wrote "Cheaper by the Dozen.")

In the last 50 years there have been many other developments in manpower analyses and manpower improvements. Most of them were small at the time and were generated to meet some need of the day. Often the need was felt in only one firm and manpower innovations were tried as a way to improve profits. When successful, the innovation gave a competitive advantage, so word spread slowly to other organizations. A management decision to develop new ways to meet the manpower problems of a single firm is still the prime source of changes in the world of work and, despite the volumes of reports and publications we now have, news of genuinely effective procedures still travels slowly.

Nevertheless, manpower techniques in analysis, training and allocation have moved ahead noticeably from the last century when Dr. Taylor demonstrated his time-study ideas with a movable wire rig and complex visual aids. However, compared with the astronomic leaps made in mechanical and automated processes, progress in studies of manpower activities has inched along a slow pace. Analytic techniques are still crude, specific objectives are still elusive, and findings are still hard to replicate.

Generally speaking developments of manpower findings are slow in all fields. Our colleagues in industry and business are not much further ahead of those of us concerned exclusively with *health* manpower. Like health manpower, business and industry manpower studies have been severely hampered in their quest for better analytical techniques by the widespread lack of needed information. These great gaps of ignorance can only be filled by research, and research is expensive. Basic research, which is sorely needed, costs even more and can seldom "justify" itself. Moreover, manpower research in business and industry is hampered by other constraints such as competition. A new process in manufacturing can be protected by a patent; new and productive information about manpower cannot be. The health industry, however, is more geared to cooperation than to competition, and it is certainly accustomed to the importance of research. So the results of health-manpower efforts may prove useful to other fields as well.

Definition of Health Manpower

The definition of "health manpower" is as elusive as the definition of health itself. Since there is no widely accepted definition of the term, the standard used at any given time reflects the view of the person making the definition. This alone may account for some of the disparity noted in various reports concerning the subject. Still, some kind of useful agreement is necessary until a better one evolves from experience. A practical definition seems to be the following: Health Manpower consists of persons in all

occupations directly concerned with health care. Since this is a broad spectrum of jobs, it is useful to break it into two major categories: Those occupations that are directly concerned with patient *services*, and those that are not. Patient services include all those occupations in which a worker contacts a patient in some way, such as in nursing, dental hygiene or therapy activities; and a few occupations in which direct contact is rare but which require thorough knowledge of patient-services procedures, such as the medical records or many laboratory occupations. Thus dietitians are considered "patient-service personnel" but hospital maintenance engineers are not, and neither are environmental technicians and sanitarians. So defined, there are about 45 health-manpower occupations directly concerned with patient services and perhaps another 20 that are not.*

Most health-manpower planners, whether called that or not, are much concerned with what is occurring in patient services. There are so many deficiencies in our nonsystems of meeting patient needs and so many urgent related problems that improvement efforts usually concentrate on patient services at the front line. As a result the working definition of health manpower normally means patient-related services, with some indication that this is only part of the field. Improperly trained persons providing services directly to patients can easily be an immediate threat to patients (e.g., inhalation therapists or a cast-room technician). Workers who are engaged in nonpatient services, such as environmental technicians and dark-room technicians do not usually pose an irreversible threat. All health-manpower occupations show much room for improvement in training, utilization of workers' time, adequacy of the work-results, and costs. The priority of placing patient-service studies before nonpatient studies is not based on any difference in degree of the problems but on the needs of the patients for better care at reasonable cost.

The Label Labyrinth

Within the field of health manpower, there is a bewildering number of labels. Once again, there is no general standardization of terms, so confusion flourishes. For example, one hears that there are from 40 to 350 different "jobs" in the health field. Sometimes the word "occupation" is used instead of "job." "Specialty" is on the scene. Occasionally the word "category" turns up. Once in a while the word "position" creeps in. There are also "job *slots*," "staffing patterns," "nursing *personnel*," "subspecialities," and, on top of it all, the interesting connotations of "exempt" and "nonexempt" personnel.

In looking at this collection of labels, some of them wearing a dash of prestige, it is clear that there are not many people who just "work" around

*An occupation may include a dozen different job *titles*. Since the distinctions between "occupation" and "job" can be unexpectedly important, they are described later in "The Label Labyrinth."

the place. This is true in other fields, too. In order to begin putting a little order into the disarray of health-manpower titles and their implications, the first step is usually an effort to sort and classify some of the worker activities. The evolution from just two occupations–"the doctor" and "the nurse"–to some 65 developed so rapidly and so unevenly, especially in the last few decades, that there has been no time for any classification labels to evolve into common acceptance. As a result, some researchers have borrowed useful terms from the U.S. Department of Labor publications; others have put new meaning into health terms, such as "speciality", and still others have borrowed phrases from industrial terminology.

It is likely that many of these terms will stay and grow in the health-manpower field. In due time perhaps the necessary standardization of terms would develop naturally out of the need for better communication or possibly it would not–continual changes might perpetrate confusion of terms. But, in view of the immediate and expanding demands for continuing education and for determining the requirements of health manpower in that connection, it becomes important to set forth the manpower classifications most commonly indicated. The following list offers as working definitions some labels that are widely used, together with their usual meanings. They are not final and may not even be the best. But they are proving useful.

Occupation: The broad limits of one major kind of work activity, often covering a wide variety of specialties with common basic education. The title "physician" indicates an occupation, as do "Registered Nurse" and "Dietitian."

Category or Specialty: The kind of work normally performed within an occupation. "Surgeon," "Pediatric Nurse Practitioner," "Staff Nurse," "Therapeutic Dietitian" are categories, or specialties.

Job: All the significant activities usually performed by one individual such as "Pediatric Staff Nurse" or "Histology Technician."

A key point to note is that in many medical fields, such as the occupation of Medical Records Librarian, there are no further subdivisions *of that work* for the *responsibility* of that work, and therefore the job titles are often given any one of the three labels: occupation, category or job. This can be confusing to persons unfamiliar with the field but there is some rationale for it.

Theoretically, an occupation becomes subdivided into categories and then into jobs, which in turn may fragment into specialized versions of a job. As a case in point, the occupation of "M.D." can narrow into "Physician" or "Surgeon" and further into "Pediatrician" and then fragment into "Pediatric Cardiologist." Unfortunately the occupation of "Doctor" is one of the few that touch base with all the theoretical subdivisions. Nearly all the others bypass a "category" heading and drop straight to the job level. Examples are the "Inhalation Therapist," which means both the occupation and the job (with job subdivisions into some five levels of training). "Medical Records

Technician" and "Medical Technologist" (or "Certified Laboratory Technologist," as it is called in at least some states), "Dietitian," and "Registered Nurse," although they are occupations, are ordinarily labeled by category and then by specialty or job.

These few examples are listed merely to illustrate the point that much time can be spent in the fruitless effort to develop a rational set of schematics that will show where every health job fits into a series of little boxes on a chart.

Health occupations evolved at different speeds and in different locales to take care of various workloads that were proving to be too much for one particular job. Sometimes the workload bogged down because of increased demands for the same activities—such as the Medical Records Librarian work—and a genuine need for trained assistants developed. In other cases, new technology was introduced and operated first by nurses and subsequently by specialists who could be rapidly trained in that one procedure. Inhalation therapy began in that way. As the respiratory equipment became more sophisticated and versatile, the need for workers who were more knowledgeable began to increase. This in turn led to more and better training in that one particular area but the training was seldom given to nurses.

Being evolutionary, as most jobs are, inhalation therapy is a good example of the confusion that arises when we attempt to construct a rational set of schematics too early. The various tasks allocated to inhalation therapy developed in response to various specific needs. These needs were (and are) different according to the employer, the medical custom of the area and the available equipment. Therefore in any gathering of ten inhalation therapists, only three, say, seem to be doing the same work. The others may operate equipment part of the time and perform quite unrelated tasks the rest of the time. This fact of life in the world of work made it nearly impossible to know just what any given Inhalation Therapist's activities were unless he was asked directly. Partly as a result of this confusion and partly as a result of increasing demands for these services, the field recently became divided into five levels of expertise. As time goes on, these levels may consolidate somewhat.

In the meantime the various titles of "registered," "assistant," "technician," "aide" and so on serve as a useful guide to the degrees of skills and knowledge. They are especially helpful to persons concerned with continuing education, because the level of professional knowledge already acquired sets the stage for further training. Titles are only guides, though, and should be handled gingerly. "Assistant" in one institution may correspond to "Aide" in another. And "structural technician" is the new title for the occupation of "janitor" in at least one hospital.

In other areas levels of knowledge are frequently not indicated in any way by job title. Therefore, at this stage of terminologic development, the old rules of thumb about defining terms assume even greater importance. Until such time as health manpower labels do have standardized meanings, the

question should not be whether this or that is the right label but what does the user mean?

MANPOWER NUMBERS

There must be some idea of the numbers of persons we now have in the health occupations before any rational planning for programs of continuing education can be undertaken. The numbers alone, however, will not provide many answers to any problems that may be facing a consortium or a college. Instead, the statistical data may well show what the problems are *not*. For example, when it becomes difficult to find L.P.N.'s (or L.V.N.'s) to fill job vacancies, it is important to know how many in the area have already been trained before launching new training or refresher courses. If the number of these professionals living in the area *and* available for work seem quite adequate for the area's needs, then the problem of continuing vacancies will probably not be solved by training more people. Upon looking more closely, it may turn out that the need is for improved training or more clinical experience. Or perhaps the problem is the salary level, or even transportation. There can be many reasons. An adequate survey of numbers will only tell us whether there are already enough trained vocational nurses.

Bearing this in mind, one may still glean much helpful information from surveys of employed manpower, despite the disparity among surveys. For example, glimmering through all the guesswork there may be a consistency about the use of L.P.N.'s instead of R.N.'s—or vice versa. Or there may be a change in the use of part-time versus full-time workers. And if a new occupation is beginning to emerge, the first signs of it will appear in an open-ended survey. The "Respiratory Technician" or "Biotronics Technician" is an example. The titles vary but the combinations of tasks are similar and are new.

A well-thought-out manpower inventory will also provide sound clues about trends in manpower employment. Are health jobs in some categories now being blended into new combinations? Are many R.N.'s working for dental practitioners? Is there further fragmentation? These are all matters of concern in planning continuing education.

In addition to manpower staffing information, it is also useful to obtain specific information on the number of licensed health professionals in the area and to determine their ages, whether they are working, looking for a job, or not now interested in working. A useful addition to this information is the compilation of what formal health-occupation courses are now available, and what the enrollment and completion figures are in each one.

These various health-manpower numbers will provide a clear picture of where an area stands at any given moment and what its immediate resources are. To that extent—but nor normally beyond that point—manpower numbers are invaluable.

Do Survey Reports Ever Agree?

"Not very often." There are several reasons for the notorious discrepancies to be seen. For one, the usual method of conducting a survey is by mail. Someone sets forth the questions, with or without definition of terms, and with or without a preliminary field test. This document is mailed to the chief of an organization, who has probably already received countless other requests similar to it from other investigators that same month. The chief may elect to become a "no response" on the spot, or he may hand it to an assistant. The assistant may easily give it to a clerk who was hired a week ago. The person filling it out normally has no useful records to copy for the survey because the data maintained in health facilities on their manpower are classified by salary and department- not by specialties or job titles–unless the specialty commands a different salary from other work of similar titles. As a result the questionnaire is filled in part with authentic data and in larger part with guesses. The compromise is, "If you are not sure, guess and get it out of here."

The results naturally are not going to agree with other studies requesting somewhat different data but formulated and processed the same. Add to this the various rationales used by investigators to classify all the reported jobs that have ambiguous titles, like "service coordinator" (a discharge planner? a clerk who schedules patients?), and the resulting document becomes part fact, part fancy.

Shortages, Rumors, and Imaginary Certainties

One of the most disturbing misapplications of health-manpower survey findings have been the widespread assumption that, if there are budgeted, unfilled vacancies in facilities that employ health manpower, then there is a shortage of trained health professionals. This fallacy has prompted us as a nation to train so many professionals in some fields that we now have an oversupply–and unemployment problems. Both the two-year R.N. and the L.P.N. training programs have followed this sad route.

It has been a painful lesson. The oversight of not defining the word "shortage" when it is used can have serious consequences.* Job *vacancies* arise from many factors: low salaries, poor location of the office or structure, poor management policies within the facility or office, and sometimes the demands of the work itself. For example, it is not easy to find an R.N. with Coronary Care Unit training who will work nights; practical nurses and aides may be reluctant to work for less money in a nursing home than they receive in a hospital–or on welfare; and poor personnel-management policies tend to generate high turnover, which automatically creates recurring vacancies.

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*See Appendix "The Side Effects of Hasty Action" at the end of this chapter.

These three factors–salaries, personnel policies and locations–often have far more to do with vacancies than any lack of trained personnel in urban communities.

There are exceptions, of course. Female workers in all the *service* industries, including health, do have a higher dropout rate than male workers. Still, when a worker resigns because of "family reasons" that may or may not be the reason. It is also true that young workers of both sexes in some allied health fields tend to disappear from those fields after a year or two. Technicians in radiology are known for this, but so far there are only speculations to explain why 18 months seem to be total career time for about 70 percent of them. This phenomenon does create genuine shortages of workers, but here again the permanent solution may not require more students in training.

Another forceful contributor to the confusion about "shortages" comes from simple semantics. An individual speaking of the need to increase the numbers of minority individuals, both in the classroom and on the job, often refers to this as a "shortage of workers." He means, "There are not enough members of minorities in the kinds of allied health jobs that they could fill." Using the word with that meaning, not many will disagree with him.

Still another source for misinterpretation of this word "shortage" lies in the employers' normal use of the word. All employers would like to have at least two eminently *qualified* persons available for each job opening, and three would be even better. As this number diminishes, talk of shortages begins to be heard. Recently, however, many employers have begun to speak of "shortages of qualified personnel," and they mean this phrase quite literally. They are saying that out of numerous trained job applicants, few are qualified to perform the work.

Three other reasons for the recurring talk of "shortages" should be mentioned. One is the confusion between an obvious health need and a lack of health manpower. For example, many residents of the inner cities have an obvious need for dental care, for treatment of hypertension, and for other kinds of attention. For the most part, though, the lack of attention is not due to a lack of manpower. The causes are often found in lack of appropriate financing, lack of transportation, and–in some cases–cultural barriers.

A second source of statements about "shortages" can be traced to professionals who have themselves trained specialized assistants and are convinced that their colleagues would benefit from the same kind of personnel. This is a very difficult issue to establish reliably because the deliberate development of any new occupation raises many unforeseen questions. Licensing problems, malpractice costs and salary requirements are only a few of the questions. Meanwhile, the professionals have every right to say there is a "shortage" of this or that kind of assistant because there really are no trained workers to speak of. The hard question is: If personnel were trained, would they actually be hired? In that respect, the experience at San

Francisco City College in the careful training of Orthopedic Assistants suggests caution. Eighteen individuals graduated from the first two-year class in 1971 and one year later only seven had found jobs. Note that this curriculum was developed from task-analysis techniques; the program had the support of the American Academy of Orthopedic Surgeons and many orthopedic surgeons around the country had indicated they would be interested in hiring the graduates.

The third source of "shortages" talk comes from the Federal government. Some of this may be due to the time lag that always occurs between changes in employment patterns and Federal programs; some is undoubtedly due to justification of budget requests, wherein it may be more persuasive to speak of shortages than to point to the real needs for improved training, continuing education, the development of clinical training facilities and the crying need for consistent and sound training of professionals who are already working in the field. Some of this talk, or course, reflects real shortages—a numerical lack—of trained persons in some pockets of the country and in many rural areas.

What, then, is one to do? One chorus of voices says, We now have too many allied-health professionals in most fields and in most locations; the counterpoint voices tell of "shortages."

It is just this problem that the professionals living and working in comparatively small geographic areas can solve *for that area.* They already know where the poor management policies are, what the clinical training problems are, what the minority training and employment picture looks like, that the local job market is likely to be in the near future, and what the transportation and economic factors are. The local community colleges already know what demands they are facing for various courses and what the subsequent employment potential will probably be.

With the important survey information about manpower numbers pertinent to a small area, the professionals need very little additional *statistical* input to develop sound priorities of action on problems they already recognize.

It is generally agreed that the subjective judgment of health professionals is not so reliable when projected to larger geographic areas. Therefore, data that have a direct bearing on manpower numbers themselves are needed in reliable statistical form that can be presented in countysize chunks. Many decisions about needs for continuing education and primary education, and about many health-care services are normally made in small geographic areas. Hard local facts are needed for that. Since nearly all small geographic areas need very similar "hard" facts, the Federal and state agencies would seem to be the best data collection points. The National Center for Health Statistics (HSMHA) began moving in that direction a few years ago with its welcomed documentation of selected licensed health occupations. Recently at NCHS new contracts were drawn with three states (Arkansas, Tennessee and

Michigan) to develop a workable State-Federal information system concerning all health-manpower licensing data, and in August of 1972 more contract applications were solicited. The plan is gradually to increase the number of states until all are included.

At NIH the new Division of Manpower Intelligence is large and bustling with activity. The professional staff has all been recruited and is now simultaneously trying to learn what is going on in the health-manpower field, and to collect and document a great deal of pertinent data that can be quantified for computer use. Some professionals in the health-manpower field predict that it will be two years before the staff in that Division works through the confusion and the many bits of conflicting information that beset all newcomers to the field, but after that the possibilities of receiving solid, valuable data that can be used locally are very promising.

Also at NIH, the Bureau of Health Manpower Education is quietly looking into some of the disturbing blocks to adequate health-manpower training, in both primary and continuing education. For example, the Bureau is contemplating ways and means of alleviating the lack of acceptable clinical and laboratory facilities for teaching purposes, and it is also involved with the development of various proficiency and equivalency testing procedures.

Maldistribution of Health Manpower

Early health-manpower information dealth almost entirely with two sets of gross numbers: persons holding licenses, and individuals by occupation working in hospitals. These numbers were then compared to estimates of the population, by county or state, since that is how population figures are most readily available, and ratios were worked out. Such ratios could not make any valid allowance for the numbers of individuals licensed but not working in those occupations, or the kinds of medical services required or even desired by the several age-groups of the population, nor could they consider any of the various delivery mechanisms or financial constraints that govern so much of the services. But even in the rough ratios—of total licensees to total population—it became apparent that health professionals tend to cluster around metropolitan centers and to avoid rural settings.

No one was surprised by these findings, but it was a shock to realize that some areas had no M.D.'s at all and that many had no R.N.'s, dentists, therapists, or public health service of any kind.

To the residents of these rural areas, the shortage of health manpower is very real and their voices have been heard over and over again. A number of ways to solve this urgent problem has been tried at the local level and it is important to note that few are directed toward training *new* manpower. Most of them involve rotating manpower in some fashion out into the rural areas on a temporary basis. The rationale, which seems perceptive, is that most health professionals at any level do not want to live permanently in a rural

setting if they have any other choice. However, an interesing study in Kansas indicates that medical students who come from a rural setting will tend to return to the same kind of surroundings. Therefore, part of the final answer for that problem may be a deliberate move on the part of the schools to consider the probable future location of their applicants, as well as all the other matters pertinent to their acceptance into medical school.

Health-Manpower Forecasts

One of the most pressing needs in the area of health-manpower education (both primary and continuing) is the need to know what numbers and kinds of health professionals will be utilized in the future and the ways in which they will be utilized.

So far we have had to resort to guesswork. Our guesswork has resulted in a disturbing number of Registered Nurses and L.V.N.'s (L.P.N.'s) who cannot find jobs; too many Medical Technologists in some parts of the country, many of them displaced by automation; a sad number of highly skilled engineers who have been retrained in medical areas only to find there is no job when the grant-financing ends. Like the Sorcerer's Apprentice, our educational system seems to keep on producing quantities of health personnel until the realities of the labor market force retreats that are painful to students and educators alike.

Another facet of this "overproduction" is related to our eagerness to produce health workers that are reportedly in great shortage. In the press of time clinical experience is often pared down to little more than a nodding acquaintance with the actual on-the-job requirements. This has been the classic problem with two-year R.N. graduates and also applies to a number of the "assistant" categories. It throws a tremendous burden on the employer-practitioner or facility—where somehow and at substantial cost the clinical training must be given often after licensing before the worker's skills are adequate to the demands of patient care.

From the standpoint of either numbers or fully satisfactory training, the greatest handicap is the genuine uncertainty about future needs. There is a long time lag from the initial planning of educational programs to the availability of qualified graduates. In the community colleges it takes two years to develop an adequate new program and to recruit able faculty for it. In the universities some curricula and faculty can materialize in four years, others require even more time. Added to that span is the time students need to begin and complete the program. Clearly the need for solid estimates is very real.

Similar problems beset the planners in continuing education. The time lag is shorter and in many ways there is more flexibility of approach. But, in view of the continuing changes in worker utilization, there is a constant shift

in the learning levels of various health professionals that educators must take into account. Classes, seminars and workshops that used to be attended only by physicians or by nurses now have an increasing number of participants with two, three, four, and five years of academic preparation, not to mention levels of clinical experience. What levels should be expected three years from now? or in six years?

To date in the health services there is no available, fully tested forecasting technique. We do have, though, an abundance of linear projections. Linear projections usually present ratios of present numbers of licensed health-professional workers by occupation to the present population, and predict increases in the former from projections of the latter. The rationale is necessarily based largely on the assumptions that there will be no major changes in the skills needed or in utilization of health-manpower workers or in the various shapes of our present delivery methods and services. Experience has shown that not one of these assumptions is realistic. The constant ferment of change existing in all health occupations dooms linear projections and ratios almost before the printer's ink is dry.

A few experimental forecasting efforts are now being formulated or tried but much further work in the development of necessary input data and in validating techniques will be required before the investigators can assess them. One of the most important of these efforts, currently in the early data-collection stages, is within the Division of Manpower Intelligence at the National Institutes of Health. Professional staffing of that Division was completed in the spring of 1972 and by July the unit was working intensively with the comprehensive data on physicians made available by the American Medical Association. At that time, of course, it was much too early for the group to estimate how they would cope with the lack of hard data in nonphysician professions.

One element of all forecasts (excluding those that border on mysticism) is a sound and extensive data base of past and present information. Other industries need that too, of course. As a result of this cross-industry need, some health-manpower planners have reconsidered the characteristics of health professionals in the light of comparisons with professionals in other industries.

These comparisons indicate that in many areas the activities of health workers are not much different from other fields, particularly service industries. Workers select a field, sometimes because they want it, more often because it is available. They pursue certain activities set forth by the demands of the job in order to provide some kind of a service; they come and go for reasons that are largely the same; there are few career ladders for the ordinary worker until or unless he struggles into a middle-management position; he is faced with changes and displacement due to technology and automation; and whether this kind will increase or decrease depends largely on the changes in the demand for the product or service engendered by his work. These and

other changes are just as rampant in other fields as they are in health services. The often-heard statement that a man now has to plan on changing his line of work at least seven times during his life did not originate in the health field.*

The general feeling in nonhealth fields is that the various forecasting techniques that predict the demand for products work well. Some are most effective at periods of three to six months; others are reliable up to two years; and two or three can be trusted up to five years and even longer. These forecasts, however, are only for product sales, and the longer time spans are generally limited to product classes (breakfast foods), rather than specific items (Cereal X). *All* the forecasting techniques require extensive, hard data concerning detailed analyses of sales, product preferences, and highly sophisticated marketing research, with much of that data going back from five to fifteen years, depending on the technique.

Shifting attention to the possibilities of *manpower* forecasting in other industries, the reports indicate very little the health industry can borrow and put to much-needed use next week. Many theoretical aspects are being studied at the university level, of course, and some are being taught. That is an encouraging sign for the future.

However, in practical terms much of the hard data that has been developed by private firms remains confidential due to the constrictions of competition. There are some notable exceptions, of course, but they are generally in the area of morale, worker satisfaction, and supervision. One of these exceptions, called MANPLAN at General Electric, concentrates on the movement of middle-management personnel, with the intent of forecasting the firm's future needs. The system understandably cannot follow workers who accept promotions or lateral transfers into other companies, so the applicability of the findings is limited.

The Department of Labor publishes projections of many manpower occupations from time to time and these can be useful if the methodology is read carefully and the figures evaluated in that light. That agency employs many highly skilled professionals but they do not have access to any crystal ball, much as they would like to. They are limited by the availability and reliability of necessary input information and they are the first to point out the limitations. Unfortunately that aspect is seldom mentioned by any medium except their own publications.

What then is the minimum input data required for reliable forecasts of health-manpower needs?

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*For these reasons, I have always tried to keep abreast of the most significant forecasting developments in other fields. For the purposes of writing this publication, I made a thorough search of the recent literature in that general area. The bibliography is available at Syracuse University, Publications in Continuing Education, Syracuse, N.Y. 13210.

In addition to well-documented historical employment data on job functions and services provided, forecasting procedures should also have complete information on:

(1) the impact of unions,

(2) the costs of manpower categories,

(3) the various kinds and extents of reimbursement constraints (some of these control both the direction and extent of services provided),

(4) technological trends in medical advances and in the procedures themselves (The Pill was one such advance, with devastating effect on the use of maternity wards) since this influences the need for professional services,

(5) legal developments in licensing,

(6) professional developments in certification and accreditation,

(7) the national disparities in professional training, which have a direct bearing on how manpower can be utilized without further training, and, of course,

(8) the mobility of our work force.

On this last, highly important point, information is very scarce. In a cost-plus industry where reasonably well-trained workers are in fairly good supply, it does not matter much how long they stay or even whether they are citizens. But in an industry of constrained costs, which is what the health field is rapidly becoming, this matters a great deal. Turnover is expensive but a totally unknown percentage of turnover is uncontrollable due to the comings and goings within a geographic area.

The Division of Manpower Intelligence at NIH is aware of the need for most of this kind of information in their forecasting efforts, and indications are that the Division will try to obtain it. If the Division is permitted to continue in that direction, despite the considerable time that will be required, the entire industry will receive tremendous benefits.

Meanwhile for all of us who are impatient for forecast findings perhaps the foregoing discussion will help explain why we do not have them and why patience is still required. Until such time as definite input data are available, the best method would be to concentrate on one small geographic area. Within such an area, the steps should be: (1) to determine health-manpower *functions,* by job titles; (2) to determine the services now provided by that manpower (What general kinds of acute illnesses are treated? What general kinds of ambulatory conditions?) and what kinds of populations are receiving the services. Once developed, this data can be related, crudely, to population forecasts—providing the relationship is well seasoned with local professionals' judgments about forthcoming technologic changes, economic changes and other factors that affect the area.

MANPOWER ACTIVITIES

Although we do need to know the probable numbers and types of occupations that we will be dealing with, both now and in the future, and

although we do need some clear ideas about the standards of performance expected to achieve adequate patient care, the third and most important aspect of determining manpower requirements is based on an assessment of what that manpower is doing now. Clearly health professionals cannot be moved around at will to fill new or different demands. Mainly this immobility is due to differences in worker knowledges and worker skills, and these differences are by no means simple. For example, most physicians who prescribe medications would shudder at the thought of personally going to the pharmacy and mixing drugs to fill their prescriptions. And the health industry as a whole does not have the freedom, either financially or in sheer bulk of manpower, to adapt the Armed Forces system of moving men where tney are needed now and training them later.

Again and again providers are faced with the problem of a real need for a specific cluster of skills and that cluster is not available. Someone must be trained. But who?

On the other side of the manpower channel are the schools. They need to know what skills will be needed so that suitable curricula can be offered. But what skills, and where do they fit into the occupational scheme of things?

Putting to one side the ancient debate about whether the purpose of higher education is to provide an intellectual base for future activities or to provide clear-cut vocational training, one issue has become quite evident in the past few years: Many schools have not been turning out products that can be readily used in the health-manpower field. Students are given knowledge they later find they do not need and are not given information they will need. We have Registered Nurses who have fulfilled every legal requirement and are bona fide R.N.'s but who have no idea how to use the normal instruments of hospital care—such as catheters and tubings—and very little judgment about patient reactions. We also have scores of individuals who have taken various courses in inhalation therapy but who cannot operate a variety of respiratory equipment properly. The same problems exist in every single allied-health field across the country, except where a period of six months to a year of on-the-job activity is required for graduation or for licensure eligibility. In the training of doctors the problem differs somewhat, in that the period of internship and residency provides the necessary clinical experience. But here there are many problems of knowledge: The students (and their mentors) report that they are not taught what they need and that they do spend considerable time learning information that turns out to be insignificant.

The employers of manpower see the problems from a different point of view. Cost is a dark cloud that hangs over the inadequately or incompletely trained workers at all levels. It simply costs more to supervise these individuals, which includes repeating many activities that were not performed properly the first time. Behind that cloud is still another and much more ominous one: danger to the patients and the threat of malpractice suits.

Those are the three major points of view about the inadequacies of worker skills: New clusters are needed and are not available; the schools are often uncertain about the skills needed to train presentday health workers and so have to guess; and employers find that inadequately trained workers are both costly and dangerous.

Clearly there are many exceptions to those general statements. But by and large they are exceptions. That may be one of the reasons why there is so much talk about "utilization of workers," about "relevant skill-training," and about the apparent increase in malpractice suits against practitioners and facilities. The problems are many, and across the country there are many individuals working hard to try to find good solutions for them.

No matter which point of view one might have in assessing the problems of manpower activities—that of the provider, of the educator or of the management specialist—the questions always seem to simmer down to one basic question: What is the worker actually doing? Sometimes this means, "What is he supposed to know? What is he responsible for?" But the most profitable approach in terms of finding practical answers are the questions: "What is he actually doing and what does he actually have to know to do it?" (Note that this is by no means the same query as "What is he supposed to be doing?" although a skilled interviewer typically receives information pertinent to both queries. Information on what the worker *should* be doing cannot be properly used until one knows what he *is* doing.)

When these questions are posed there is often a reaction of amazed disbelief. The feeling is that everyone *knows* what the workers are doing. "For one thing," the puzzled listener says, "the work is perfectly public; and for another the job requirements are obvious to anyone in the field. If an investigator is not very familiar with the job requirements, there are—at least for allied-health workers—always some job descriptions somewhere."

This reaction of disbelief is often accompanied by hidden or open resistance to questions about any worker's activities or, for that matter, the activities of an entire occupation. The implication, to many listeners, is that: (a) the health personnel under consideration are handling tasks they should not be doing or (b) they are not doing them as well as they should be.

These are legitimate reactions and should not be dismissed lightly. People in the field of health services usually do have a good idea about the job requirements; they usually do know what the responsibilities are; and experience has taught them when studies are carried out on the activities many aspects do come to light that need to be changed. Industrial engineers working in hospitals could write volumes on the front-line resistance to analytical studies because they have so often been the targets for it.

Nevertheless, the kernel of the important question "What is the worker doing?" remains unanswered. Until one looks at the activities closely and objectively, there is no real knowledge about what is actually going on. We only know the results, or general outcome. For many purposes the general

outcome is sufficient. However, for improving utilization, for building better course contents, for reducing costs, for reducing turnover and for planning continuing education, we need to deal with something more specific than "general outcomes." We need to isolate the components of the work in some way that can be translated into training and then back into *changed* components. These changed components may or may not alter the general outcome (a staff nurse is still a staff nurse with those responsibilities) but they *will* alter the kind of performance that characterizes the outcomes.

There are several useful ways to go about isolating the components of worker activities. They have different aims and therefore different methodologies, but one element is common to all of them: The success of the analysis is directly related to the distance between the investigator and the worker. The closer that relationship, the more accurate the findings. Professional societies serve well as consultants and the literature occasionally offers some excellent assistance but the most important facts come from the workers themselves. They are not observers of the changes in health-manpower activities. They are right in the middle of things and very much aware of what they need to know in order to perform satisfactorily. However, the moment the worker gets away from the job setting and begins to think in more general terms about the requirements for his work, whether academic or otherwise, his vision begins to change and his personal view of his profession as a whole colors his convictions. Where he once felt that a high school diploma was an adequate training base, now it seems that at least two years of college are required to understand the job fully. Somewhat later in time members of the same profession will openly speculate about the importance of four years, and perhaps even post-graduate work, *for what is largely the same job.* However, these convictions about the need for more academic education are a widespread human phenomenon. Where the job itself has changed radically additional training *is* often required—but the need is not usually for additional academic education. If workers like and respect their work, they will tend to impute more importance and more significance to future academic preparation than the activities may require. When interviewed in an on-the-job setting, where the questions are confined to the knowledge required to do the work at hand, this phenomenon is not so likely to occur. In its place comes essential information about *task* knowledges and skills.

Therefore, the successful analyses of work activities begin with careful investigations conducted with the help of the workers themselves when they are on the job. It is *after* that step step that professional organizations and supervisors can, and do, provide invaluable assistance.

Importance of the Setting

Before considering the various kinds of analyses applied to work activities, it is helpful to consider the setting. Health-manpower activities do not occur

in a vacuum—or in a textbook or monograph. They transpire in a setting, and the setting itself imposes definite demands on the activities. This point is easy to overlook, and when overlooked, confusion creeps in.

To people who have not considered the impact of settings on job activities it comes as a surprise to discover that the needs for specific clusters of abilities vary as widely as the kinds of services provided and sometimes vary with the location of services. For example, a short-stay general hospital functions in a fairly rigid time frame for many of its worker activities. An extended-care facility does not. Group-practice efforts have still a different time element.

The general result of these differences is that workers in short-term facilities usually perform *fewer* kinds of tasks, often using more in-depth knowledge, and complete them under greater pressure. In facilities where the time frame is longer, unless one of Parkinson's Laws in in operation, ("work expands to fill the time available"), workers tend to be *more* versatile. Given more time workers are also given more variety in tasks but perform them less frequently.

Within facilities, including group practice and public agencies, there are similar differences between units. Therefore, in understanding any kind of worker activity analysis at all, the *setting* should be considered at some length.

Two Types of Analyses

It is convenient to divide the various kinds of work analyses into two broad categories. The first category includes all those techniques that isolate whole tasks of a job and describe them in some way found to be useful to the purpose at hand. This might be a job description, to be used in determining salary, or it might be a task list to determine the amount of time spent on various activities ("What does she *do* all day?"), or the analysis might be shaped in any of a dozen other ways to meet other needs. But in all cases the tasks themselves are considered as intact little units. Most of the analytical methods presently available fall into this group.

The other major approach also isolates the tasks but then goes on to dissect each task into its component parts of knowledges, skills, equipment and purpose. In other words the task itself is analyzed. The available analytical methodologies are few in number and differ somewhat in emphasis, but they all share intense interest in what is actually going on *within* each task activity that produces the task result. What goes on, of course, is the exercise of knowledges and skills on a task-by-task basis.

All of the methods are useful but each produces results somewhat different from the others. Like nearly everything else in the manpower field, each approach was initially a response to a need to learn some specific kinds

of information about job activities. Therefore, the methods are not interchangeable. What is ideal for one purpose may well not work at all when picked up bodily and applied to another purpose.

Therefore, in selecting any one technique or any combination, it is well to develop a clear idea of what information is needed. To that end the following pages list the usual purposes of the common analytical techniques, together with some general indications of the methodologies involved. Some of the techniques have been developed or refined by commercial firms that perform studies for a fee; some are the results of efforts entirely within the health field. Rather than confuse matters by labeling them accordingly, the following pages simply present them by general types. (Unfortunately, it is not possible to give credit to the prime originators of all the methodologies, nor is it possible to describe all the variations.) However, the following list of types of work-activity analyses is intended to include virtually all of the techniques commonly utilized, together with their customary applications.

Job Descriptions:

These descriptions are familiar to most workers but their primary purpose is not clear to many investigators. Job descriptions are written, often by the worker himself, so that the job may be appropriately classified *in terms of wages,* and used for hiring, transfer or promotional purposes. For this reason job descriptions are often loosely written in narrative form that may or may not follow a standardized format. The worker or personnel analyst describes in general terms what the worker is responsible for during the course of an ordinary day or week, with the emphasis on the general nature of his activities. It is customary to describe to whom the worker reports, how many (if any) individuals he supervises, and what elements of initiation or judgment are required of him in the performance of his work.

Most employers have some framework, written or implicit, that equates wages and work responsibilities. From this the salary range is determined. Within that range, adjustments may be made for specific qualifications of the worker. The pressure to spell out duty limitations increases if the job is unionized.

Job descriptions normally do *not* focus on the kinds and degrees of knowledge required to perform the job, nor do they usually spell out the activity so that anyone else may infer the real scope of knowledge. This kind of information is rarely necessary for the determination of suitable salaries, so it is not gathered in a job description.

Job Specifications:

Related to job descriptions are these specifications which represent the judgment of an employer, or of a group of other individuals acting as his representative, concerning the hiring-in qualifications for the job. What kind

of experience and education seems to be necessary before an applicant can even be considered? Is a 10th-grade education sufficient? Can the work be performed only by a physician? Does the job require calculus? Should there be certification or accreditation? These are the kinds of matters that make up job specifications and they are mentioned here only because of the interest in dissolving artificial barriers to jobs and in improving career mobilities. Study after study has shown that job specifications can easily become unrealistic in terms of the actual job activities.

The routine demand for a high school diploma is a case in point. That much schooling per se is simply not required for many different jobs, ranging from Admission Clerks to Surgical Technicians. However, there are two continuing reasons for maintaining some of the apparently irrelevant job specifications, such as a high school or even a junior college diploma. One reason is simply the labor market supply of individuals who have such diplomas and who are otherwise qualified. An employer wonders to himself why he should settle for a dropout when for the same salary he can obtain the services of someone who on the paper record is a little more rounded in his academic background. Another reason is the more elusive opinion that an individual who persisted with his formal education has thereby demonstrated a degree of self-discipline that others may not have.

Analyzing work activities in terms of job specifications, whether objectively established or determined by tradition, has been undertaken at some length by the U.S. Department of Labor and by a number of persons interested in New Careers developments or in restructuring jobs. Goldstein and Horowitz[4] in particular have worked out an adaptable system, but the others are equally useful for their purposes.

Task Lists or Task Inventories:

This type of analysis is often confused with the label task *analysis*, due in part perhaps to the deep-rooted American custom of not looking in the box that is under the label. Task *lists* are simply "laundry lists" of what a worker does as the workday wears on. "Talks to patients," "gives injections," "fills out forms," "answers telephone," "fills prescriptions," "assists physician on rounds" are examples of task *lists*.

Ordinarily the lists themselves are not initially standardized against any definitions or any format; nor is there usually any procedure for separating the significant tasks from those that are less consequential. These two steps come later and are undertaken by the person investigating the activities. Therefore the lists can be, and are, re-shaped to fit many different purposes. One such purpose may be to improve utilization of the workers' time by avoiding activities that duplicate what someone else is already doing. Or the lists may be used to find overlapping responsibilities. Or they may be pointed toward a better understanding of the workflow. Sometimes (but not often)

they are used to gain knowledge of what the patient thinks about various procedures: From whom does he gain his information about what is happening to him?

Generally speaking task lists omit mention of specific knowledges required for each task and omit the precise kind of action involved. Both of these aspects are usually assumed to be general knowledge within one department or one practitioner's office or even within the profession, and often they are general knowledge. Only when educators begin to pore over these lists and ask many questions do the people in the field realize that the lists are not self evident after all. This is usually followed by the dismaying development that persons in the field, and often in the occupation being studied, cannot agree on the kinds of knowledge required in each specific task. Under discussion, what was thought to be perfectly obvious becomes more and more obscure. (What does a worker really have to know to insert a needle into a vein? Anatomy? The symptoms of "fragile" veins, such as are found in Diabetes?)

Another fact that can prove troublesome with task lists is related, again, to the knowledge of the worker concerned. This time, though, it has to do with the input, or the worker's reasons for performing the taks, not the apparent task itself. This is an important distinction in the medical field and accounts for many of the apparent duplications of tasks. A supervising R.N. may apply an elastic bandage to the leg of an elderly patient *in order* to gain some firsthand insight into the patient's general awareness. This knowledge will then be applied to other activities concerning that patient. An aide, on the other hand, may apply the bandage to the same patient to provide the necessary elastic support. In both instances, the manual activities are the same, but only in the most superficial sense could it be called the same task, and therefore stands as poor utilization of the supervising R.N.'s time. To give another instance, a supervising R.N. may perform many tasks normally allocated to subordinates simply because there are not enough subordinates. (In these instances, the mental input may be different but it is seldom intentional.) Since task lists seldom delve into the reasons, or input side, for an activity, it can be difficult to distinguish between apparent and authentic duplications and overlaps.

One of the best uses of the task-list technique lies in its value in determining job boundaries. In developing course content, for example, it is important to have as comprehensive a picture as possible about the entire job as it now exists, although only one small part may call for special training.

Physical Activity Measurements:

This type of study travels under various names, such as "physical demands," or simpler phrases like "walking time," but the aim is to classify activity on the basis of physical action. In identifying those tasks in a job that can–or cannot–be performed by handicapped individuals, there are several

sophisticated measuring devices. For the most part, however, assessment of physical activity is a minor part of a health-service job. The exceptions occur only where the layout requires a great deal of time-consuming motions or where a great deal of travel away from the premises is involved. In these instances studies are conducted with an eye to improving the conditions, rather than to improving the skills of the worker.

Educational and Vocational Measurements:

In studies of this nature, the word "educational" is often used with impressive poetic license. So is the word "measurement." However, the usual reason for estimating these levels is to determine job specifications. The measurement may be a ranking of the "educational" requirements for one job compared with those of another; or the measurement may consist of an analyst's guess concerning how much academic exposure is necessary to perform the job. He may or may not be guided by a ranking scale. Often there is confirmation of the estimate from workers or supervisors in the field.

In view of the disparity of course contents taught at any given academic grade-level, the national General Educational Development scale is often used as a yardstick. This scale speaks of levels instead of academic grade-years and does specify the kinds and degree of knowledges that should be evident to warrant rating at any given level. The assumption is that anyone who can pass appropriate G.E.D. tests really does have the knowledge indicated. Over the years this assumption has been proved valid enough to merit general use of the test in lieu of high school diplomas.

Some perceptive research has been done by many school districts in this comparatively small area of educational research but it is difficult to apply the findings from one area to another because the schools do differ in course content at any given level.

In matters of continuing education, particularly those subjects that are likely to be based on the concept of a completed "high school education," one is well advised to obtain supplementary information from the school districts about the degrees of knowledge their graduates allegedly have and the schools' experiences in discovering what the graduates actually have. For example, a great number of otherwise well-designed continuing education efforts have foundered because no one realized in advance that the students' reading levels were totally inadequate. Studies along these lines show clearly that the reading deficiencies are by no means confined to the so-called "disadvantaged" workers.

In the vocational arena educational estimates are somewhat simpler, for the training is already geared to specific jobs and the effectiveness of the training becomes quickly apparent. Is the worker able to perform the tasks? Does he or she know how to handle the tools, the instruments, the forms, the routine problems, the patients? What vocational training was required for

that? A number of different rating scales are available for use in comparing or ranking various jobs, but for the purposes of continuing education either the training institutions or the workers can provide excellent information on the nature and extent of required vocational preparations.

Time Studies:

Some important contributions to a better understanding of the framework of many health-service jobs have been made by time studies. Proponents of this kind of measurement have invariably encountered stiff resistance from workers, however, and engineers who have entered a department with stopwatch in hand have learned to wear invisible armor.

At their simplest time measurements are clock measurements of physical activity. How long does it take to apply a Band-Aid? Insert a stomach tube? Fill out a form? Receive and relay a telephone call? Fill a prescription?

Time studies are not designed to take into account the different *mental* activities such as problem-solving or information-giving that are required of various health workers who may be performing the same task. It is on these grounds that the method has been heavily under fire from workers.

On the other hand, the method necessarily develops task lists which are of value and it is an excellent management tools. The findings do present at least the beginnings of objective measures on which staff budgeting can be tentatively allocated. A manager can arrive at some kind of fairly predictable estimate of how many nurses are needed in a given unit if there is an independent measure of (a) what the tasks are that they normally perform and (b) how long it takes to start and complete the significant tasks.

From an administrative standpoint, this is a great improvement over the traditional guesswork methods of determining personnel needs. But when used alone time studies can unwittingly do a disservice to workers in the health service (or any service) industry. Many employers have made that discovery, sometimes with real alarm, as the workers generate their own kinds of hurricane-warning signals. Many health-service employers have abandoned time studies at that point. Others have retained them but add the best judgments they can find concerning the time allowance needed for mental or related activities and try to build these judgments into the timing standards. It is not easy to set timing standards because the health-service field is by nature a mixture of services provided to one set of individuals by another set of individuals. Some patients require more time than others, whether it is the surgeon's time in removing an appendix or the nurse aide's time in feeding a patient. And some workers are always quicker than others. Averages never seem fair to the workers.

The newer time-study procedures, such as the Commission for Administrative Services in Hospitals (C.A.S.H.) system in California, do try to take that into account by using [illegible] ranges. If these systems are applied with careful

attention to their limitations, which the C.A.S.H. engineers always point out, reports of good results are much more common than reports of failures.

Motion Studies:

Motion studies come almost intact from the factory production lines. They are included here because Time Studies are often mistakenly called "Time and Motion" and because in the preparation of course content true motion studies do play a small part in alayses of work in some specialized areas.

Motion studies discern exactly what physical motions are required in a task or set of tasks. Precisely what body movements are required? With that information in hand the next step, usually requiring trained interpretation, is to find ways to modify those motions either to improve the skills, to shorten the time involved in the task, or to isolate tasks of a job that may be performed by someone else with less physical capability.

Motion studies differ from "physical measurements" in that weights and distances are not usually included. Only the physical motion is studied. The information may be developed by observation or by films. In the health services the principal uses of motion studies have been in studies of patients for vocational therapy to determine what jobs they might be able to manage with, say, restricted range of motion. There is little need for this kind of investigation for health manpower itself, even for employment of handicapped persons as health workers. The limitations of such workers and job demands can be matched usually without testing procedures.

Wage and Salary Measurements:

To those persons not familiar with the marketing side of all health services (that is, persons who have not had to grip the thorny problem that all health-manpower workers must be paid for the work required to produce the services), this facet of considering health-manpower requirements often seems irrelevant. At first glance it even seems strange. After all, education and training in the health services, particularly continuing education, are designed to improve the depth and breadth of knowledge of the adult students so that they may provide better services. Therefore, aside from instruction that is frankly developed to prepare workers for "higher-paying jobs," it is often felt that salaries have no bearing on the matter.

By and large there seems to be no reason why planners should consider the salaries themselves in terms of dollars and cents. But there is a demonstrable *relationship* between incomes and job levels and educators do need to concern themselves with that. The wages, salaries, and/or fees received reflect definite ranges of skills, knowledges, abilities, and job focus. The relationship has always existed because the jobs create the services and the services are marketed. If that relationship is disturbed, whether by salaries that are

regarded as "more than that job level is worth" or by the actions of some workers who have received additional education beyond that normally associated with their job level, the result is the same: Either new categories are created and paid accordingly or all categories are adjusted so that the distinctions between them are once again acceptable.

When educators tinker with that relationship by providing education and training to part or all of one category of worker beyond the level of "marketable worth" formerly attributed to the services provided by those workers, it does not take long for the educators to hear about it from the employers. The history of the Coronary Care Unit nurses is an excellent example. In that instance staff nurses were given special training to enable them to provide much better service to cardiac patients. It was, and is, hard to imagine a better motive or a more dramatic need for continuing education. After the training, however, the nurses felt, and said quite clearly, that they should now receive a higher salary. Many persons did not, and still do not, agree. Nevertheless, the strong, general undercurrent of feeling was that this demand was fair—because it was sensed that C.C.U.-trained nurses in actuality no longer fit the limits set by the ranking hierarchy. The final result, of course, was that a specialized category was created—and in most places paid for.

The history of union negotiations in the health industry (and in all other industries as well) illustrates the same point. When increased income levels are negotiated for many workers occupying one whole "class" or job level, all *other* levels will ultimately have to receive proportionate increases. When an employer demurs at this prospect, as in his instinct, workers refuse to cooperate. Some rebel and leave; some rebel and stay but perform at unsatisfactory levels. New workers then join the throng and share the resentment. Ultimately the employer is faced with the formidable choice of either terminating most employees every few weeks or adjusting the income hierarchy.

The relationship between job level and income is a complex and interesting field in itself which from all reports no one fully understands. In the health services the work of Scoville, Weiss and others clearly demonstrate the existence of the relationship and show that it is readily subject to ranking[13,20]. The income relationship between levels is so definite that it can be seen even through the dust of the surrogate measurements investigators have had to use. Surrogate devices, such as census data and professional guesses about knowledge, were necessary because no way had yet been developed to isolate the generic knowledge and skill components of job tasks.

Therefore in terms of practical application to the planning of course content, especially in continuing education, there should be constant awareness that income distinctions do exist in definite relationship between job categories. These distinctions are based on knowledge, skills, and job content. At the minimum this awareness can serve as a brake on unrealistic enthusiasm in planning course content. At its best the awareness can give

impetus to the planning of those courses in continuing education that will assist the worker and presumably the patient and for which there is a growing economic demand as well. And these demands are not always for specialization of skills. One such need that is currently becoming evident is the demand for technicians who can understand and operate a variety of diagnostic and monitoring equipment, rather than just one or two general types. It would seem reasonable, economically as well as educationally, to begin with individuals already trained in the one or two types. Broadening their skills would increase their earning powers but in this case employers say they would welcome the change.

Diaries:

This old-fashioned word describes a kind of analysis based on daily job-activity journals maintained by the workers themselves. Ordinarily workers enter the time an activity occurred and describe in their own words the general nature of the action. They may be asked to record only what they regard as significant activities or all activities or only those actions pertinent to some specific problem area that may be blocking smooth work production. There is no widely standardized format for recording this kind of data and possible one is not necessary.

Diaries are useful in pinpointing duplications of effort, in learning the number of times one action occurs within a given period, in developing clues about work habits and even about attitudes. They do not reveal much about the knowledge or actual responsibilities of the workers since diaries–like task lists and time studies–reflect much more of the output than mental input. Again it is worth stating that the visible aspects of many tasks in the health services are performed at numerous levels of job knowledge and they may or may not be performed for the same reason at all levels.

Due to the nature of diaries, their best use is found in the comparison of one level of worker, such as a Physical Therapy Aide, with another level of the same occupation, such as a Physical Therapy Assistant. Comparison of activities of two or more workers on the same level, for example, a comparison of the work of L.P.N.'s in different settings, requires an enormous amount of sifting and organizing of the diary contents to discern the similar and dissimilar activities. The same information can be obtained much more readily by task lists.

Critical Incident Studies:

A critical incident description is not so much an actual measurement as a narrative account of waht happened in an event where a decision had to be made promptly and correctly, and the worker had to follow through with a minimum of difficulty. Knowledge and skills are not regarded as entities.

Often these descriptions concern potentially difficult interpersonal relationships, either with co-workers or with patients, but they may also concern the use of professional judgment in selecting one course of action over another. Using the Physical Therapist again as an example, a critical incident could well be the interpretation of the physician's general order for therapy. It is up to the Physical Therapist's professional judgment in view of the patient's history and condition whether to apply this procedure or that technique.

In the matter of interpersonal relationships critical incidents could involve the management of patients who are not feeling cooperative, or a worker's response to other persons who are not producing the desirable output. There is much more here than simple tact and persuasion, of course. Knowledge, judgment, and temperamental ability to make decisions all play an important part, and they can all be seen in good descriptions of critical incidents. On the whole one of the best uses of this technique is in the classroom, where the incident is described or shown with visual aids, and then discussed by the class. Another useful application is in the training of supervisory personnel.

The method offers many useful insights into the worker's knowledge and skills—both academic information and the kinds of skills that come only with experience—required for successful job performance.

Work Sampling Measurements:

This technique is used rather widely and for a number of different purposes. The principal aim, though, is to improve utilization of workers' time on the job and through that mechanism to improve the quantity and/or quality of output. To that end an observer becomes an intermittent shadow of a worker and records what the worker is doing at prescribed intervals of time. The observer may record every activity in detail, such as "answered telephone at 2:15 p.m.," or he may consolidate activities as the day progresses, recording "answered telephone 26 times," "took histories of seven new emergency patients" and all other pertinent data.

The major drawback to the sampling of worker activities is that the sample may not be reliable. For one thing, there are marked variations of activity among workers presumed to be performing the same job. For another, unless the observer is well trained, and most of them are not, the normal exchange of conversation between the observer and worker will alter the worker's behavior. Sometimes these conversations become lengthy explanations, which affect the reliability of the sample. Or the worker may modify his activities in some ways merely because he is being observed.

Nevertheless, this procedure can detect most of the gross problems in personnel utilization and it will also pick up excellent indications of the level of knowledge the worker needs to perform well. These are only clues, however. Work sampling will permit reviewers only to draw inferences about the need for, say, further training. Further investigation is always required

and is often best obtained by interviewing the workers themselves as well as their superiors.

Another kind of work sampling, more appropriately used in nonclinical areas, consists of selecting and studying samples of written information in order to make reliable generalizations. Examples here are the sampling of accounts receivable, surgical inventories, or amount of material used per unit of product. Sampling of patients' charts to verify completeness of certain entries is also common. In these instances, standard random sampling or systematic sampling procedures are followed. Although they are not complex procedures, still they should never be undertaken without the advice of a statistician. For reliable conclusions the desirable precision and accuracy of the sample should first be determined statistically, and the various numbers of items to be inspected should be calculated from that—not vice versa.

In the sampling of those work activities that are recorded by an observer, statistical techniques are not normally employed because one cannot make the basic statistical assumption that the universe will correspond with the sample. For example, if five out of ten L.V.N.'s are giving medication, the statistical assumption would be that probably two of the others are also giving medication. Or, if seven out of ten residents are completing their chart work accurately, the statistical probability is that all of them are doing so. In both instances, statistical probability collides with reason. However, the persons within a facility can evaluate work sampling of health professionals' activities in terms of other knowledge and thereby usually arrive at correct conclusions. Outside reviewers do not have that advantage and have become wary in interpreting the results of work-sampling studies of activities performed in a setting with which they are not personally familiar.

Psychological Measurements: attitudes, job satisfaction, personal needs:

This area has not received much attention in the health services, although there is general agreement that job dissatisfaction certainly engenders poor performance and often is a direct threat to acceptable patient care. One of the most critical factors leading to uneven or routinely poor performance is generally agreed to be under- or over-utilization or inappropriate utilization of workers' skills. It clearly augments the turnover rate, which in most health-service facilities is inordinately high. (An annual turnover rate of 110 percent among R.N.'s is not at all uncommon, and 75-80 percent turnover is often accepted as an inevitable evil.)

In these days of comparative affluence, it is generally conceded that, for most levels of work, the salary is not a major cause of dissatisfaction. Exceptions occur only at the bottom of the hierarchy or in facilities with limited income, such as small nursing homes, where the Federal minimum wage is observed for the lowest levels. (Welfare payments ordinarily exceed

those amounts, as do the going rates for routine casual labor or day work, so the turnover persists at high levels.)

At other levels the salary is usually satisfactory but many other aspects of the job are not. Supervision may be poor; personnel-management policies may be antiquated; advancement opportunities may be limited to such an extent that virtually every job is a dead-end job; and in many cases workers may not even know what their own job objectives are, much less receive recognition for achieving them.

In this particular aspect of work the problems are almost identical with those that our colleagues in other fields have been struggling with for some years. In those fields there is a great deal of published information on these causes of poor job performance, and a search of the library will elicit pounds of information, ranging from the early and classic Hawthorne study[12,21] to the more sophisticated work on motivation by Herzberg[7], Ford[2] and many others.

For the purposes of continuing education the important points here have to do with the use of a worker's skills. In actual practice the extent to which a worker's skills are utilized is determined by the setting even more than what he is supposed to do according to his license.

Job dissatisfaction occurs when a highly trained and interested health professional is continually asked to perform routine tasks that could easily be taken over by other personnel. Dissatisfaction is also rampant when a worker is continually asked to perform at a level beyond his skills and knowledges. No one likes to be out over his head very often. In the health services this sensation carries an additional sharp edge because of the potential hazard to another individual—the patient.

The Regional Medical Programs have quietly accomplished a great deal in rectifying the problems of professionals who needed specialized training for the work they were being asked to do. Most of this work has been directed toward continuing education for physicians and for Registered Nurses but the other health professions have not been overlooked.

It should be noted in passing that continuing education has also been used by the professionals themselves in a manner that gives them a super-specialization—and in the process unfortunately diminishes the numbers of persons available for a broader range of need.

The other side of the picture, where professionals have received training and even licenses but cannot perform the ordinary tasks of their jobs, has not yet received the kind of attention it warrants. It is especially important because these are the individuals who are often terminated, or who leave their jobs because of too much "pressure." Others take their places, and the quality of patient care goes up and down accordingly.

It is true that the health field requires different skills and knowledges, has different settings, different constraints, a moderately different use of the language, and notably different hazards from other fields. Despite these

differences, if one assumes that an individual is in the field most suitable for his interests, job satisfaction requires the same factors in health services that it does in all other fields. These factors are an intellectual understanding of the job, possession of the necessary skills (mental and physical), a sense of personal achievement, some recognition of effort, advancement opportunities, prestige or status, and a salary that is neither far above nor far below whatever is generally felt to be equitable for the work required.

The few attitude studies performed to date on personnel in the health services suggest no intrinsic differences from other fields. And so much research has already been reported in non-health fields concerning the whole matter of attitudes, job satisfaction, and their relationships to turnover, that it seems hard to justify further research on this subject for purposes of continuing education in the health field.

Workflow Studies:

This kind of analysis is applied generally when the purpose is to learn the movements of a procedure—a document or even a patient—as they occur in the start-to-finish labyrinth called the health services. The charting of the movement is, among many other things, a direct reflection of the results of worker activities. However, taken by itself, a workflow study is not expected to show much about the knowledge and skill levels of the health manpower, except by inference. Instead, the usual purpose is to detect and correct the hidden roadblocks to smooth and efficient flow of procedures.

However, there is such a close meshing of professional skills and the usual procedures (whatever they may be) that investigators of a skill-and-knowledge needs of a job often find themselves having to conduct rough workflow studies in order to develop their own findings accurately. Once again it is the matter of professional skills being utilized within a given setting. Workflow studies take a close look at the setting itself.

Computers and Mathematical Models:

The use of mathematical models begins with comparatively simple computerized equations for selected, quantifiable matters such as business-office functions, scheduling activities or inventory control. Somewhat more advanced kinds have been tried in efforts to resolve the workflow problems of other departments, such as laboratories and dietary departments. More complex still is some of the work now going on with sets of quantifiable data that have not heretofore been well correlated. One such effort deals with vital statistics in a macrosimulation model which will permit ready correlations and statistical forecasting of certain events that have not been previously possible. Hospital information systems as such have not always fared so well, despite some outstanding inhouse successes; and the health-manpower activities have proved even more difficult.

Although the various kinds of modeling efforts are still in their invancy in health-manpower studies, enough work has been achieved so that an old, familiar point again emerges: The input data are faulty. Failure or equivocal results of models to produce useful products seem usually to be caused by the endless number of variables in the available input data. Years of struggle with that particular stumbling block in health-manpower information have shown that is many cases the variables themselves exist because there is so little standardization of meanings. Standardization has not been necessary except in medical and surgical procedures and in some administrative areas. Generally workers rely on good personal communication and that does not require precise vocabularies. Standardization of meanings is quite another matter. In the health-manpower field almost the entire vocabulary is still evolving. For example, "task" can mean anything from answering the telephone to performing all the nursing care required for one type of post-operative patient, and "skill" and "knowledge" are often used interchangeably. In order to codify and program hundreds of words with similar ranges of interpretation, many investigators must either make numerous arbitrary decisions, which tend to defeat any agreement on interpretation of results, or embark on a careful training program for individuals who are providing information. (Anyone who has ever utilized questionnaires can testify to the need for standardization and to the headaches that go with it.) Either way a number of undetected variables will always slip by. And with computers, the inexorable rule is "hidden variables in, confusion out."

Difficulties May be Diminished

These same hidden variables, or misinterpretations of meanings, have plagued health-manpower training for years. However, a great deal of this confusion is expected to dissolve when health-manpower research finally isolates and identifies the precise knowledge and skill elements of a task. These elements do exist and always have. Moreover, they remain quite stable themselves even when they become attached to other components (as they always do). The problem has been to locate, define, and begin to measure these stable components so that the thousands of visible outputs can assume their rightful places as consequences of highly specific knowledges and skills.

Fortunately some excellent research has been going on for some time to develop this sorely needed data. Each approach has its own advocates and opponents, and the technical discussions that have naturally ensued have sometimes generated small swirls of controversy. Nevertheless, there is basic agreement that the research direction is correct. The need on all sides is not for more information about tasks, but for different information, and it seems to be coming.

The following pages discuss these approaches at some length in ways intended to relate these new general methodologies to the practical needs at

hand. Since these needs vary somewhat according to the kinds of continuing education problem under consideration, some reports will also be given of shortcuts (and their limitations) that have been tried during this present period until the major methodologies become more widely available.

ANALYSES OF HEALTH MANPOWER ACTIVITIES

The query among intelligent people who have been exposed to a smattering of analytical discussions about occupations is, what could be so complicated about it? The layman's normal feeling is that all one needs to do is look at the job and select out the information one wants. What is so complex about that?

This is analogous to the layman who wonders what is so complex and costly about brain surgery. All anybody does is drill a hole in the skull and take out whatever the trouble is. Who needs years of schooling to do that?

An old Swedish saying, "Everything is simple until you begin to understand it," applied perfectly to the appearance of health-manpower analyses. Performed and reported properly, they seem easy and simple. So does the work of a brain surgeon or a chemist. But, of course, we are looking at the result of applied knowledges and honored skills, and not at the knowledges and skills themselves. This holds equally true with our own jobs, whatever they may be. We recognize excellent performance and we apply our own knowledges and skills, but few of us could sort out the components so that they could be taught.

Analyzing health-manpower activities requires time, special skills, special knowledges—and a procedure. There are several procedures and methodologies with some demanding more expertise than others. All of them have proved useful for various purposes and most of them can be modified to meet new needs or settings.

However, much confusion still exists in the health field, and in other fields too, because of the semantic elusiveness of some of the descriptive analytical phrases. "Task analysis" is one such phrase. To some it means any kind of a job study that goes beyond a simple listing of a job or occupational title. To others it means itemizing the tasks of activities of an occupation of a job in a kind of order pertinent to the purpose at hand. And to still others it means a true dissection of an activity into its component elements of knowledge, skill, purpose and related equipment needed. Finally, the phrase also means precise descriptions of the kind and degree of knowledges and skills that must be applied to each task.

Like many other references in the English language, it is common practice for the same word to mean several different things, and the speaker is semantically correct in making his own selection among the common usages. These verbal shoals are a constant threat in the health-manpower field unless

definitions are given along the way. Therefore, some simple definitions are offered here for the purpose of clarity in the pages that follow.

Task Analyses and Task Lists: Which Is Which?

As meant here, the phrase "task analysis" means the separation of jobs into discrete tasks with the tasks then separated into their integral parts of knowledge, skills, functions, the physical and mental activity that concerns people as well as things, and the setting in which all this occurs. Task *analysis* in this sense is quite different from task *lists*, or inventories, although both are analyses of jobs.

Ordinarily a task list itemizes what occurs as a result of the worker's activity but it seems at first glance to be an analysis of the task because the descriptive verbs are normally in the present tense. To use a simplified example of one statement in a task list, a Physical Therapy or Physical Therapy Assistant "measures range of patient's wrist motion." The list may or may not state what equipment is used to do so but is clear to the reader that the range of motion is measured. This does not state what prompted the measurement, how it occurred, nor does it indicate the worker's skill or knowledge except indirectly, and there is no information about why this occurred or what happened to the measurement. It is important to bear in mind that most task lists do not provide this important data because the *departmental* persons using the information already know exactly what it would be, and they mentally fill that in when they read. It comes as a constant surprise to the personnel within a department that others—whether in the same facility, in the same profession, or in an educational setting—simply cannot "mentally fill in" the rest of the picture of the task without further clarification. In a discussion of task list information with other professionals in the same field, this clarification comes through a rapid exchange of questions and responses that occurs so automatically it is hardly noticed. However, once the document containing task-list information stands alone, the misinterpretation and confusion begin.

To continue with the same example, a task *analysis* describes how the patient's wrist motion is measured, which in itself will clearly indicate the knowledge required for the task and will certainly identify any equipment used. The analysis then describes in detail that varies according to the purpose the knowledge and skill components that generate the action, the reason for the measurement in the first place, and where the measurement is recorded.

It follows, then, that the choice of a task-list (with or without modification) or a task-analysis method depends largely on the purpose. In many instances task lists are quite adequate. In some inservice training activities many persons have found the use of task lists for entire jobs combined with task analysis for selected aspects to be a good combination.

Use of Task Lists: The literature provides abundant samples of various kinds of task-list formulations. Some methods suggest preclassification of the

kinds of work found within a job, such as "technical," and "administrative"; others prefer the convenience of listing tasks more or less as they fall and clustering them later; still others suggest creating checklists in advance. Each procedure offers advantages and disadvantages. Preclassification requires numerous definitions in advance concerning the boundaries of the task areas and these decisions are sometimes difficult to make. Listing tasks as they are found requires a great deal of subsequent study to classify them in whatever manner has been predetermined. And checklists risk the insidious danger of assuming that the investigator or professional group already know how the workers are performing basic tasks and in which combinations.

With the wide disparity among work assignments, not to mention the endless significant variations among workers who are ostensibly performing the same job, predetermined task lists may provide results that are completely misleading.

For developing reliably accurate task lists, as well as acquiring the valuable "fallout benefits" of related information, the most satisfactory method seems to be a listing of the workers' tasks by an interviewer who records the workers' key words. This is time-consuming, and requires an objective approach on the part of the interviewer, but the worker's words are clear and remain clear throughout subsequent compilation because they are so closely bound to the physical and mental activities required by each task.

To improve the utilization of workers' time on the job and to diminish the unnecessary efforts that develop like weeds as a result of communication mishaps, task lists are usually sufficient. Moreover, they readily lend themselves to several kinds of classification, such as "output," "salary," years of "academic training" and even "equipment skills."

Another advantage of task lists is the ease with which they can be expanded to include nonworkers. A nonworker could, of course, be the patient. As is widely known, patients have been surveyed from time to time by many persons concerned with their views and some hospitals make a point of asking for patients' opinions about services. Task lists, however, can perform a different kind of service in this connection that is highly informative. For example, patients can be queried about their sources of treatment information. Who took the time to tell them what was going on? Who *explained* anything? In the large and busy hospital and clinic settings, the persons informing the patient are not usually the physician or the Registered Nurse. The subjective feeling about this seems to be that the physicians are too busy and the assumption is that the nurses will take over this important part of patient care, but the nurses have many different demands on their time that take precedence, including meetings to discuss the quality of care. They do what they can but study after study shows that time actually spent with patients is usually only a small part of the working day for nurses. So, if a patient receives any information at all, much less the

reassurance that comes from understanding, who provides it? And how reliable is it?

An interesting recent study in this connection was conducted in 1972 at Mercy Hospital in San Diego[9]. The study took place in the Physical Medicine Department, with the aim of determining how management of the workload could be improved, and an expanded task-list method was adopted. Task lists were compiled with assistance from the workers and charted out to show who was doing what. Then the hospital investigators went two steps further: They asked the workers to suggest improvements in work methods and they asked the patients what *they* thought.

Among other things the outcome of the study showed duplication of effort by Physical Therapists and Physical Therapy Assistants, which surprised no one familar with this insidious problem; it also showed that virtually *all* the personnel in this department explain not only the physical therapy procedures but many other matters to patients. This fact reinforced another worker suggestion that the professional personnel should receive training in the management of depressed patients. This is not only an urgent need when muscular cooperation is essential but, again, it is also a matter of assisting the patient to understand what the procedures are all about in his particular case.

A frequent practice in developing task information is to blend simplified task lists with professional estimates of the knowledges required for the significant tasks. This route is readily accessible to most investigators and has the added benefit of involving established health professionals in the study. Its greatest danger lies in the lists' apparent wealth of information for educators to translate into planning courses or even curricula. It is not until the educators pore over the lists and come away wearing baffled expressions that the professionals who compiled the lists realize what happened. It is not the fault of the task lists. They *do* contain a wealth of information. The problem seems to be that the estimates of knowledge reported as being essential to the performance of the job tasks are seldom specific enough for development of course content. Lurking right behind that lack of specificity is the great difficulty groups experience when they try to sort out the "need to know" from the "nice to know." To give a simplified example, how much anatomy does a worker need to know in order to draw blood from a patient's vein? This procedure is not usually classes as surgery (although patients sometime doubt that when an inexperienced worker attempts a venepuncture) but if not surgery, then what knowledge is necessary for that one procedure when applied to *any* patient with *any* kind of condition?

In responding to that question professionals who are not referring to their own jobs must necessarily generalize because they know better than anyone else how many variables of knowledge and skill actually exist in on-the-job settings. Experienced health professionals have also discovered that it is nice to know at least the rudiments of anatomy because this information increases

the depth of understanding that can accompany many tasks. As a result the fine line that separates the "need to know" from the "nice to know" can easily become erased as the list of tasks and knowledges grows.

The educators must then try to work back through all the generalities to the specifics and, if a four-year college is making the effort, try to meet the demands of their own general education standards at the same time. Unless a task list spells out the *specific* knowledge required for each task, it is very difficult for designers of a curriculum (or even of one course) to be sure that their efforts will include the actual "need-to-know" information.

It is at this point that the worker's own words, noted on a task list, become invaluable. For the worker is likely to state the case in simple and straightforward terms, and he will usually refer only to what he needs to know for that task. For a venepuncture this need rarely includes any knowledge of bones, muscles, and neural patterns.

Perhaps the most distinguished pioneers in the development and use of expanded task lists for use in training are the Armed Forces. By now they are old hands at searching out what their men and women really need to know to do the job. In some cases the particular service itself has rolled up its sleeves and performed all the preliminary work that is necessary in a major effort of this kind; in other instances it has contracted the study to a commercial firm; in still others it has done both. The result is the availability of a great deal of sound data concerning tasks. The data is naturally organized around the jobs as they are found in the Armed Services and not in civilian life, but many tasks and responsibilities do remain identical. As a result the data task and job data compiled by Armed Services provide much information to anyone who wishes to know what has already been achieved in expanded task lists for personnel in the allied-health fields.

Task Analysis and Job Analysis

These two phrases suffer from much misunderstanding. Possible the confusion comes from the fact that manpower studies, like the whole field itself, do not yet have a clear terminology. Investigators who have studied the current analytical methods and then ventured forth to attempt their own analyses are more likely to use the same phrase to mean the same activity. But others are certainly free to use any label they want. Moreover some phrases seem to have an innate appeal: They are easily remembered, they sound a little impressive or even "scientific," and they are fairly new to the user, which is always an attraction. For these and no doubt other reasons the phrase "task analysis" has been heard, remembered and applied to an impressive array of different techniques. As mentioned earlier, every type of work activity description has been called "task analysis" at one time or another.

"Job analysis," on the other hand, has not shared in this popularity. It is apparently a more pedestrian phrase and even sounds a little boring. "Job

analysis" smacks of something the personnel man does off in a corner somewhere and, whatever it is, it probably isn't very interesting.

Simply for ease of communication, the most effective use of these phrases always seems to be derived from the original work performed by the U.S. Department of Labor 30 or more years ago. The major findings of this work, published in 1944, resulted in a job-analysis manual[18]. This manual was designed for use by workers in both the Federal agency, and in the various state agencies which at that time bore a variety of names but were (and are) known as the "State Employment Offices." The whole purpose of the manual was to assist the Federal and state workers in honing down job information so that it could be utilized in matching workers on jobs.

In those days word traveled slowly about new publications from the Government Printing Office; even so the manual enjoyed a growing popularity in business and industry and in a matter of a few years the publication was no longer in print. In 1965 a revised version, the *Training and Reference Manual for Job Analysis*[19], was issued; it too was out of print before the demand had been satisfied. In 1972 a new volume *Handbook for Analyzing Jobs*[16] has been published and will be available at the Government Printing Office until that supply is exhausted. All three volumes provide not only the methodologies first presented (and then modified somewhat as the revisions were published) by the Department of Labor but also very useful definitions.

Some Definitions

Since nearly all the analytical methodologies currently in use for task and job studies today are direct descendants of the original techniques and rely on many of the same—or very similar—definitions, perhaps it would be well to consider the originals. For the purposes of this monograph, the author feels that the definitions in the 1965 *Training and Reference Manual for Job Analysis* are more informative to readers who are not familiar with the Department of Labor's work in this area, or who do not have an extensive background in industrial engineering. Since that volume is out of print, the following paragraphs are a direct quotation from it, pages 3 and 6-7[19].

> Job analysis is defined as the process of determining, by observation, interview, and study, and of reporting the significant worker activities and requirements and the technical and environmental factors of a specific job. It is the identification of the tasks which comprise the job and of the skills, knowledges, abilities, and responsibilities required of the worker for successful job performance.
>
> ELEMENT is the smallest step into which it is practicable to subdivide any work activity without analyzing separate motions, movements, and mental processes involved. It is a work unit that

describes in detail the methods, procedures and mental processes involved in a portion of a job.

TASK . . made up of one or more elements, is one of the distinct major activities that constitute logical and necessary steps in the work performed by the worker. It is the work unit that deals with the methods, procedures, and techniques (the "what," "Why" and "How") by which parts of a job are carried out. A task is created whenever human effort, in terms of one or more elements, must be exerted for a specific purpose. The effort may be physical, as pulling or lifting, or mental, as planning and explaining.

The effort may be exerted to change a material or merely to maintain the status quo of a material. The material may be tangible, as boards and nails, or intangible, as numbers and words. Each task or duty has certain distinguishing characteristics.

(a) It is recognized, usually as being one of the worker's principal responsibilities.
(b) It occupies a significant portion of the worker's work time.
(c) It involves work operations which utilize closely related skills, knowledges, and abilities.
(d) It is performed for some purpose, by some methods, according to some standard with respect to speed, accuracy, quality, or quantity. This standard may be provided by the worker himself through trial and error or as a result of experience; it may be furnished to the worker by his supervisor in the form of oral, written, or graphic instruction; or it may exist in the form of directives, published operating procedures, or similar media.

Tasks may be considered major or minor, depending on the extent to which they establish demands for skills, knowledges, aptitudes, physical capacities, and personal traits and upon the percentage of total work time involved in their performance.

POSITION is an aggregate of tasks or duties with related responsibilities. Each position has characteristics which distinguish it and by which it may be recognized.

(a) It has a definite scope and purpose.
(b) It requires the full-time service of one worker.
(c) It involves work which utilizes related skills, knowledges and abilities.

JOB may be defined as a group of positions which are identical with respect to their major significant tasks and sufficiently alike to justify their being covered by a single analysis.

These are the original and classic definitions. For purposes of health-manpower job and task analyses, it has been found convenient to modify two of the labels but not the definitions. In this way "position" is erased and is replaced by "job," and "specialty" or "category" replaces what the *Handbook* calls "job." As time goes on and we have more data and more widespread understanding, it may be well to reconsider the enduring value of the original definitions.

Meanwhile, especially in developing course content or improving utilization, professionals think of a job as being both what the Manual labels "position" and what it refers to as "job." Similarly, a "group of positions which are identical with respect to. . .significant tasks" are what health professionals call a "specialty" or "category." Development of a suggested nomenclature is far beyond the scope of this monograph. The intention here is merely to assist individuals with the semantic signals.

If this classification is used as a guide, then *task* analysis becomes a specific methodology for taking a close look at the elements of a task—the knowledge, skills, abilities, and purpose involved in that task alone. *Job* analysis, on the other hand, consolidates similar tasks into one or two phrases and concentrates on the tasks that form the most important parts of the job. The skills, knowledges, abilities and purposes are still set forth but in a compiled form. For example, a task analysis of a physician giving a physical examination would show, item by item, every action he takes: "listens to heart rhythms in patient's chest and back, using stethoscope, to detect abnormal sounds, such as. . . ." This kind of analysis fills pages, as can well be imagined. It also provides excellent material for developing training.

A *job* analysis of the same physician would dispose of the physical examination tasks in a sentence or two, such as "Determines physical signs of patient's health by estimating or testing reflexes, heart rhythms, presence of tissue masses and related physical symptoms, using equipment such as rubber hammer, sphygmamometer, ophthalmoscope. . . ." This provides a clear, general idea of one whole set of tasks but it is too general to point to the knowledges required for *each* task.

In the growing concern about the suitability of primary training in the health occupations and the great needs for continuing education, it is reassuring to know that there are good, solid techniques for determining what the requirements of any job actually are. The techniques not only exist but have been tried successfully time and again during the past 25 years and have been found to be both clear and objective.

This very objectivity, however, can arouse resistance among individuals who are not familiar with the techniques. There seems to be a tiny, latent fear in the back of many workers' minds in all fields that if a job is analyzed and the tasks are analyzed too, it will arouse suspicion that he really isn't doing very much of anything. Or, contrariwise, that he is doing things he isn't supposed to, although no one has ever told him.

In the health services, more than any other field, this shadowy fear is not only unfounded–it is appalling. One wonders when we are going to start giving credit to all the remarkable improvements the professionals inaugurate themselves, instead of concentrating solely on the problems that arise. Time and again department heads and supervisors have been astonished to find in a task analysis that the workers knew much more than their training warranted. They are equally startled to see on paper just how a certain job has changed–usually for the better. And, where a need for more training is expressed, the usual reaction of others is to hasten the training–not to frown at the workers.

Of course the climate under which any study is undertaken heavily influences the substance of the findings. If the persons whose work is being studied are not well informed about the purpose and the procedures of the study, the degree of accuracy of the findings is always a little uncertain.

The attitude and skill of the interviewer always turns out to be a critical factor in the reliability of the findings. Analytical procedures–of almost any kind–cannot be undertaken lightly or by persons who have received no training if one hopes to have significant results. Analyses, most particularly job analyses and task analyses, are difficult. Successful ones must follow a rigorous discipline that does not come naturally to anyone. It must be learned and that learning cannot come easily out of a book or manual. Part of the learning requires supervised practice to develop the skills involved and fledgling analysts invariably experience the dubious job of learning by their own mistakes. There is no other way to learn the needed skills except through supervised practice because job- and task-analysis procedures require both great precision and seasoned judgment. Fortunately the required learning and practice do not require vast amounts of time. In brief, neither job analysis or task analysis should be undertaken by anyone who is not trained by a professional in the procedures. Authentic professionals are not easy to locate, despite frequent claims by commercial firms, but they do exist.

Meanwhile, it is important to note that the original Department of Labor techniques do not lend themselves to *task* analysis without considerable modification to suit the purpose at hand because they were, and remain, pointed toward matching men to positions by way of a sound classification methodology. This necessarily consolidates or omits a great many details the educators and others must have for their work. On the other hand, the Department of Labor publications often provide some important occupational considerations that readers are not likely to find anywhere else. Of particular note to those of us concerned with career lattices is the Department of Labor *A Handbook for Job Restructuring*[17], which is based on the classification scheme used in the *Dictionary of Occupational Titles*[15]. The job-restructuring techniques are designed to isolate those parts of one job that may be grouped into the formation of another job requiring less skills and knowledges. The procedure can be useful in creating jobs for

persons with less education or other advantages than the present job-occupant, and it can be related to career lattices. It is not recommended for use in resolving educational problems because its knowledge, skill and aptitude scales were not devised with that purpose in mind. The analytical procedures are those of classic job analysis.

Task Analysis for Curriculum Development

In the determination of appropriate course and curriculum content, it is *task* analysis with its detailed data concerning skills and knowledges, as defined earlier, that proves most valuable. This is the procedure that will elicit the knowledge required to perform each task and record it in such a way that the findings can be studied easily by curriculum planners.

At least one complete curriculum has been developed in this fashion: the two-year Orthopedic Assistant training at San Francisco City College in 1969[3]. In this instance a trained analyst worked closely with the faculty of the College, assisting at every step from the initial job observations through the several interviews with workers and finally to the compilation of the knowledge areas into useful formats. The college felt secure in the knowledge that it was then planning training for the tasks of the Orthopedic Assistant jobs as they really exist. That judgment proved accurate in subsequent on-the-job settings. The same tactics would again be pursued by the same school if trained analysts were again available.

Of the various task-analysis methods tried, three general types—with or without modification—have been successful. All are derived in some way from the original Department of Labor methodologies and each has a somewhat different purpose. These differences should be borne in mind when assessing them because the products reflect the purpose.

The simplest one was developed by the Health Manpower Council of California[5] and was designed for use in hospitals and as a basis for assisting faculty to determine course content. In the hospital a trained analyst instructed department workers in the techniques of analyzing the tasks *in that department only* to locate and isolate poor utilization of workers' skills and time. Poor utilization is costly at best and at worst constitutes a real hazard to adequate patient care. These efforts were successful in that the "analysts" were taught only specific procedures that were needed to find the trouble-spots in their own departments.

That methodology was adopted by a California industrial engineering firm that is governed by the state hospital association and is now applied on an as-needed basis.

Another task analysis procedure was developed by the W.E. UpJohn Institute for Employment Research, under the guidance of Dr. Sidney Fine, who was instrumental in much of the original Department of Labor's efforts—especially those concerning the identification and classification of worker traits. These efforts are generally known as "Functional Job Analysis"

or, occasionally, as the UpJohn Method[22]. This method provides an extremely useful way of locating and identifying *functions*, with special emphasis given to the system.

A key component of this technique is the careful distinction drawn between "prescribed" and "discretionary" work instructions. These two aspects were also noted and documented in the excellent studies at the Glacier Metal Company, Ltd., in England. The British investigations began in 1948[8] and continued for many years, pursuing now one new lead, now another. The original and continuing aim of these studies was to find some equitable means of determining wages based on the innate characteristics of jobs themselves (as opposed to outer results). Holding to the distinction between prescribed and discretionary work through the course of endless interviews, career-progress studies of individuals and continuing analyses of many kinds of data, the investigators ultimately did arrive at a new method for determining salary ranges.

In Functional Job Analysis, or the UpJohn method[1, 10], measuring scales have been worked out for each of these factors: data; people; things; reasoning; mathematical and language skills; and a scale for the prescribed and discretionary contents of work instructions. In all there are seven scales. Each level of the scales carries carefully worded definitions, which are designed to enable others to develop their own scales concerning the tasks of any job under consideration.

In the process of developing such scales according to this method, the general knowledge content of each task becomes clear, as do a number of other related factors. One of the first related points that is likely to become clear is the comparative ease with which the *task* functions can be separated from the level of the *worker's* characteristics. For example, some workers must be reminded of certain tasks and some workers need no reminders. (Does the job require close supervision or doesn't it?) Some see an unexpected problem instantly, others have to be told. These, and a hundred other traits make it difficult for many analysts to separate the task itself from the way the worker goes about all his activities. The Functional Job Analysis automatically provides safeguards against that confusion by focusing on specific components of tasks.

By utilizing this method on a task-by-task basis, an entire job can be dissected into its components in such a way that not too much remains to be done to determine either the appropriate course content for that job *or* to select out those components which can be delegated or restructured into another job. Although there is no generally accepted knowledge taxonomy, the Functional Job Analysis procedures provide one good route to the correct isolation of the knowledge elements so that training can be built directly from the analytical products themselves.

"The Gilpatrick Method," or the HSMS Method[6]: Another route, one which takes a somewhat different approach to the entire subject, has been

blazed by the work performed in the Health Services Mobility Study under the direction of Eleanor Gilpatrick. This large study has been going on for some years (as has the Functional Job Analysis method) and has always been funded by various agencies of the Federal Government. It incorporates some very new thinking about definitions of job components and consistently isolates and describes these components in a lucid fashion. It has also produced a knowledge taxonomy.

In this method the focus is on tasks. The task is seen as a unit of work activity performed by a given individual that can be moved from one job to another without disrupting other activities. The definition of task focuses on the identifiable output that is either consumed independently or used as in input into the next stage of work performed. The definition involves "what is used," meaning all the things a worker uses or chooses from in order to produce the output; and it includes the kind of recipient, respondent, or co-worker involved in the task.

The method requires the job analysts to describe the steps of the task, the elements, so that there is a basis to find and evaluate the required skills and knowledges for the task. The Gilpatrick method distinguishes clearly between skills and knowledge. Both are learnable, but knowledge is learned through didactic instruction; skills may be taught with a didactic presentation but the actual learning of the skill is the result of practice. The System presents a taxonomy for knowledge; there is a Knowledge Classification System, which presents categories in an outline form and with an 8-digit identification code.

Scales for knowledge and skills have been worked out carefully and empirically. The scale for knowledge, which is information about facts and concepts, rises according to the depth of understanding and the breadth of detailed knowledge required. All the scales are applied to the *task* being studied—not to the job or the occupation as a whole.

Since knowledge has been categorized in so many ways over the years, it may be of interest to present the type of knowledge classified in the System and the types not covered by the System. The categories in the System must be required for use in work situations, contain transferable information, and must represent subject areas that organize a body of information so that it may be conceived of in incremental units; thus a task can be scaled for each category it requires according to the depth and breadth of knowledge called for.

Excluded from the System are types of knowledge that are procedural and confined to the individual steps of a task. Such procedural information does not require a learning effort beyond everyday experience and normal maturation; it is not scalable. Also excluded is knowledge unique to the institution (orientation knowledge) since it is not transferable from one place to another. The System includes categories in all the major disciplines. Each of these has only one location in the System.

As can be seen, this approach is not traditional in any sense of the word. However, it is highly workable when it comes to statistical analysis and workable for curriculum design.

Skills, on the other hand, are different—as the method notes. They are used in the application of all types of knowledge. There are 16 learnable skills: three are manual, two are interpersonal; three concern precision in the use of language; two deal with decision-making; four refer to general intellectual skills (skills, not aptitudes), and two are "responsibility skills," which relate to the recognition of the consequences of error in task performance. A descriptive, numerical scale has been worked out for each skills, and there is also a scale for task frequency.

The skills and knowledges of the tasks being studied are treated as variables, and the task data are subjected to an advanced form of factor analysis. The data base presents a distillation of what each task actually requires in knowledge and in skills. When all the tasks of the related activities have been clustered to reflect the ways in which the skills and knowledges cluster, the tasks are rank-ordered in terms of their values on the factors. Tasks at given levels are then arranged into jobs, and the jobs into ladders and lattices. This provides the basis for job restructuring or the creation of job ladders and a choice of upward mobility pathways.

The career ladders and lattices reflect the actual functions of the work. Job descriptions become much better and much easier, and so does performance evaluation. The task data then become inputs in the design of curricula that reflect the work and that can go up in academic stages requiring no repeat of training as the ladder is climbed.

By far the most significant aspect of the Gilpatrick method lies in its two original products: (1) The definitions actually isolate tasks (defined as "a set of work activities needed to produce an identifiable output that can be independently consumed or used, or that can be. . .an input in a further stage of production" by the performer of the task or someone else); these units do stand alone, and they are placed in a work setting. The need for this has been sensed for years but the solution has never been found before. It is this achievement that will permit the moving around of tasks in any direction one wishes. (2) Skills and knowledges are defined and scaled; they can be isolated and tied together in new ways if that ever seems desirable from a teaching standpoint. The work is brilliant, perceptive, and totally realistic.

In its present stage, however, the method cannot be carried out by most individuals concerning themselves with tasks and jobs for the first time. These individuals are deeply interested in the subject but need a reasonably quick means to an end—the end always being the change of specified jobs within an establishment of some kind, or the identification of the skills and knowledges required for successful continuing education; or for primary education related to subsequent performance of specific jobs. In other words, the interest is prompted, and properly so, by the need for rapid action. The Gilpatrick

method cannot yet be used by others who are ready to meet the exigencies of that need. Strange as it may sound, it requires findings that are too complete. All of it is important but not all of it may be needed to begin moving in the direction people want to undertake in primary and continuing health education. These directions begin one at a time and usually consist of one kind of occupation at a time. The HSMS method deals with whole functional areas at a time in order to build job ladders.

The Gilpatrick method, which takes time and expertise, will tell us how to find out exactly what degrees of knowledges and skills Occupation X requires and therefore what we ought to be planning in the way of education for either Occupation X or for an assistant in that occupation. But, in the finding out, we will also have to set forth a great deal of data that persons—at our present stage of development in the education of health professionals—often regard as superfluous for the training we want to plan. In that respect the method as it presently exists may tell us more than we think we want to know. However, the work being done by the HSMS results in recommendations that can be used, and will result in curriculum guidelines that can be followed. (Current work is being done in Radiology.)

Meanwhile, the procedures—just as they are now—are well worth thoughtful study by anyone seriously interested in trying to grasp the fundamentals and complexities that exist in health-occupation activities. Some of the scales can be roughly adapted right now to certain occupations, provided the adaptation is performed by someone who has prior task-analysis experience and understands the method. Experience has shown, though, that this work cannot be done by someone as a part-time assignment, as a Saturday chore, as the product of a brief visit to the HSMS facilities in New York or by any of the casual routes we are accustomed to taking. Invariably the people who have followed those routes have grasped the enormous value of task analysis products but did not allow for the time required to develop the knowledge and skills that are necessary to apply *all* task analysis procedures. And so, just as invariably, the result was gloom and disappointment.

The Need for Health Manpower Expertise

To health professionals and educators who have been struggling with the problems of training health manpower, the need for professional expertise in the field itself has become more and more apparent. In both fields—health services and education—professionals are hard put to keep abreast of the changes in their own specialties, much less the pyramiding problems of health manpower.

Most individuals will agree to that. Why, then, are there so few experts in the field? The answer to that is simplicity itself: Until the last seven or eight years there has been no demand for it. The reasons for this are complex and all of them known in other contexts. But taken together they form a definite pattern, which is worth noting in a simplified form.

Unlike any other service industry, the health field has never had to be competitive in the usual American sense of the word. It could and did function within a fairly narrow stratum of patients. Most of the patients paid their own bills. Some were charity or teaching cases. Twenty years ago medical insurance was in its infancy and the national level of affluence was much lower. Physicians usually adjusted their fees to the patient's income, and still do in many instances. Hospitals too had different rate schedules. Hospitals were also training most of their personnel, which were mainly Registered Nurses. This did not skyrocket prices because salaries were low, as they were in the public health departments where R.N.'s were given whatever specialized training seemed necessary.

Two other factors were also widely operating at that time: The diagnosis and treatment of disease was much simpler because medical knowledge was much more limited than it is now, and great numbers of citizens felt that medical attention was a luxury they could not afford except in very grave situations.

In less than 20 years all this changed, and drastically. Medical knowledge and medical technology moved ahead at incredible speeds (e.g., the drugs and surgical techniques in use today compared with those of 20 years ago); the general level of affluence among the citizens soared to new highs, bringing with it a new attitude about medical care; and the demands for service outpaced the industry.

As is characteristic of all industries under conditions like that, many individuals moved to meet the demand and did so in a number of ways—practically none of them coordinated with any other.

Costs went up; more allied-health occupations began to appear; training began to be undertaken by the burgeoning community colleges instead of the hospitals; and more citizens began to receive care through both public and private (including third party) sources of payment. While these fast trends continued to move, two significant events occurred in the middle 1960's: The advent of Medicare not only provided new insurance coverages but subsequently brought the first *national* effort to contain costs of services; and health workers, including interns and residents, either went on strike for higher wages or threatened to do so. Salaries did go up substantially and so did costs. But now there were new constraints on costs, and now too there were many more citizens affected by them—either directly or through taxes for services to the medically indigent.

All along, of course, there had been many individuals concerned about the quality of the training given to health professionals but this concern became much wider and deeper. Poor quality of care is not acceptable but, on the other hand, the industry could no longer afford the old methods of assuring good professional skills by training much of their own personnel. Moreover there is need now for many different kinds of professional services, and many kinds of professional workers have evolved to fill those needs. Gradually it

became apparent that both the boundaries of activity in any one occupation and the kind of training required to perform it needed better control.

Moving along a parallel route were the educational institutions. Having been given the responsibility for training many health professionals that were formerly products of on-the-job setting, the schools tried repeatedly and valiantly to teach what seemed to be appropriate. There were occasional successes but often the results were not quite satisfactory to anyone—to the workers, other professionals in the health-delivery setting, or to the schools themselves.

Meanwhile, costs continued to soar far beyond the rate normally ascribed to inflation. Although the poor utilization of trained health professionals contributes heavily to costs, it is by no means the sole reason for it. The net effect of the rise in personnel costs on the educational system, however, was still more pressure to produce professionals who were reasonably competent when they walked in the door of the health-delivery service setting. Extensive on-the-job training has become a luxury few providers feel they can afford.

From this combination of events and circumstances, a need for some kind of expertise gradually became apparent and a number of different sources was promptly tapped. Through trial and error it was learned that industrial engineers could contribute much of value. So could cost-benefit experts. So could computer processing of certain kinds of data (but in other areas, computers proved unsatisfactory for the kinds of problems that existed). Also effective were the much-needed training in management techniques and in techniques of effective supervisory skills. These and other sources of help were all "borrowed" from other industries or businesses. Nearly all of these efforts were on a one-at-a-time basis. Many were published; news of many more were simply discussed in the course of other conferences and meetings.

Numerous effective ways of improving the delivery aspects of health are now slowly being incorporated into various procedures and the less effective ones are dying away, as one might expect. But the educators and providers still had very little help in achieving much progress in the matter of training students adequately for health-service jobs. A new kind of expertise was obviously required and—as is often the case—some pioneers in that particular area were already working on the development of information that would be needed.

It was obvious by now that some way had to be found to isolate the knowledge *and* skills needed by health professionals to perform their work. If the educators had that, it would not be difficult to plan course content to match. But how could anyone collect and evaluate the thousands of tasks that are carried out in patient care and determine the knowledge and skill content from that? This route had been tried over and over again and the product was never very helpful. Educators do not teach "tasks"; they teach knowledge and skills. Some way had to be found to isolate the *generic*

knowledge and skills that were triggered into action by the demands of the tasks.

Task analysis seems to be the best route to take, and certainly its use to date, though limited, has shown it to be remarkably effective. Among the task-analysis methods, it seems clear that the Gilpatrick Method may well have the most ultimate value to most users. The alternate choices appear to be the Functional Job Analysis methodology, or any of the one-occupation methods noted in the bibliography of this article. Commercial firms are also available. Among them are Technomics, Inc., in Washington, D.C., and California—the firm that conducted extensive studies for the Navy; and the Army's HUMMROW, Inc., also of Washington and California. All these analytical techniques require professional assistance in their performance, and there are not yet many of these professionals in the nation. However, there are a few. Readers who are interested in knowing more about any method of interest are urged to contact the source directly.

Interim Possibilities

For health professionals engaged in teaching and for educators and persons concerned with educational consortia for health education, there are several immediate courses of action that may prove helpful in determining what knowledges and skills should be taught in any given allied-health occupation.

One way is to arrange meetings between faculty members concerned with developing course content and workers for the sole purpose of learning just what the tasks are and just what knowledges and skills are required to perform the tasks. The secret of success in this method is the contact between a faculty member and the *worker*. He, the man on the job, knows far better than anyone else what *he* has to know to do his job well in that setting. Other sources of information, such as professional organizations and supervisors, are helpful in providing verification but should not be the primary source. The faculty member or inservice specialist must build on what the worker knows now—task by task and skill by skill. Therefore, the best initial source of data about the tasks, knowledges, and skills is the worker. For just this reason all the successful job-analysis or task-analysis methods rely heavily on interview and observation of the worker.

Another alternative is to obtain the task information already developed and published. Typically this data represents the way the work existed in one occupation or one department in whatever institution was studied and, of course, was developed to meet some specific need. The *Index of Hospital Literature,* available at most university libraries, lists many of these reports.

Still another source—often a rich one—is the published material available concerning training and/or utilization procedures for allied-health personnel. Several good studies have been performed in this connection, usually on a one-occupation basis. Space limitations do not permit listing more than two[23,11]. The reports not only show the methodology but also usually

include enough samples of the findings to enable the reader to understand exactly what many or all of the tasks are. The skill of applying the method, of course, comes only with practice and there are no shortcuts for that.

A fourth way to obtain useful task information is to take advantage of the material developed by the Armed Forces. The Navy in particular has recently completed an exhaustive study of its health manpower on a task-by-task basis. This was a service-wide study directed from Washington by Captain Ouida Upchurch, and the safeguards against error were so complete that it is unlikely any significant task was overlooked. The Army, too, has developed much material, as have the other Forces. In using health-manpower material from any of the Armed Forces, great care must be used because it is often very different from that performed at the same level, or even by the same job title, in civilian efforts. Still the majority of functions are similar. Nearly all of this data is available and readers who are interested in obtaining it should contact the Services directly.

One or more of the foregoing alternatives can provide excellent starting points for the development of course content or even curricula. However, all task data selected for use should be verified by professionals already working in the occupation under consideration. This is a necessary precaution against marked regional variations in health professionals' tasks, and against the changes that are constantly occurring everywhere in the health services.

THE CHANGING SCENE OF HEALTH MANPOWER

Health manpower is a dynamic group of several dozen occupations that change so rapidly an observer sometimes wonders if it is not a river of some kind. It is in fact the chief component of a sensitive process. From the standpoint of the overall picture of work, the process begins with a need for some kind of service. When this need is financed individuals are soon trained to meet it (if new training is needed) and the service becomes possible. The service in turn must flow within the bounds of what the financing will buy and certain other constraints, which are always changing. These are the constraints of legislation, of union negotiations, of professional and/or inhouse improvements, of the capabilities of the average worker, of his training, of the management policies that do or do not exist, and, finally, the constraints of technological advances. All of this transpires in, or directly affects, what is still largely a "cottage industry."

Once the pattern of services begins to emerge at any given time, then another look at the demands will show that they, too, are changing. This sets in motion a new train of developments. Meanwhile, the health professionals on the job are slowly changing the nature of their jobs, because it *is* a service industry with the services performed by people, not by machines.

The result, again from the standpoint of health-manpower activities, is a change in the jobs themselves; L.V.N.'s now do many of the tasks formerly

performed by R.N.'s. Inhalation Therapy has grown from occasional operation of the early respirators (which was performed by the R.N.'s) to a field in itself with five levels of recognized occupational categories. And some Medical Record Librarians now direct computer programming.

It would seem to be an error to assume that any of this can or should be changed. So long as people are performing jobs that provide needed services, there will be other people buying the products of those jobs, and continuing change and improvement will result.

Nevertheless, two extremely important points should be borne in mind. To planners of health services and training, both points are also reassuring.

The first point is that changes in occupational requirements come about slowly. There is always a lead time of at least three years. New laws such as those expanding insurance or modifying licenses do not go into effect overnight; medical breakthroughs must be tested over and over again and then they take hold slowly. Professional inhouse changes, such as the current trend toward different and vastly improved medical-record systems, move slowly. Another example is automated laboratory equipment, which was first introduced nearly 10 years before it became widely accepted.

The second point is that the health services are providing the same *basic* services they always have. Human beings ordinarily develop only so many kinds of medical conditions or outright illnesses and they are susceptible to only so many kinds of care. The increasing affluence of our citizens is not producing many *new* needs in treating conditions and illnesses; instead we are much more aware of the extent of the present needs and we know much better how to cope with some of them.

Therefore, the sum of these two important considerations is that for the primary education of most allied-health manpower and for the continuing education of all health professionals there is always a period of several years between the first signs of a trend and its crystallization.

National health insurance is a case in point. It is widely assumed that the United States will adopt some kind of national health insurance plan and that this will create "crash training programs." A number of bills are now under consideration, each one stressing a different approach to the same need. If one considers the considerable public and private insurance coverages now available to the residents of this country, it can be seen that the great majority of citizens already has some kind of coverage for acute illnesses. There are many serious problems in the delivery of many public services (and some private), and there are many needs of ambulatory persons not now being met. But, except for catastrophies, can it really be said that lack of financial coverage—which is insurance—is the reason for the flaws or lack in health-care delivery? It seems more likely that any of the health insurance bills now under consideration would increase demand for a few specialized services and for all ambulatory services that are now available. That in turn would not require any crash program of primary education, such as we have

had in the training of R.N.'s, but it *would* place heavy demands on providers to regroup delivery methods and retrain present workers accordingly. The burden of meeting these needs would move directly to continuing education.

Another example is the present trend toward increasing use of nursing homes for the elderly. A concomitant need to provide better nursing and therapy skills in these facilities has also been increasing. This trend will accelerate with every passing year but, until such time as the demand for these services warrants specialization, the training burden is on continuing education. To date most of that has been informal and on-the-job, but here and there the schools are now beginning to pay much closer attention to the needs of the nursing homes.

Another kind of trend that is becoming evident is the increasing interest in proficiency and equivalency testing of health professionals. The traditional methods of requiring certification and accreditation, and of academic background for licensure examinations are being found increasingly unworkable. The formal and informal credentials that are acceptable in one state are not always effective in another, and the highly effective training given in the Armed Services is usually worthless to the veteran when he tries to obtain similar civilian work. Again when a worker in one institution performs well and acquires exceptional responsibility for his category, it is not possible for him to move to another facility and commence work at the same level because he has no objective evidence of his qualifications.

In view of the tremendous mobility of the American population, the old methods of assuring proper qualifications of workers that once served well have now become barriers against the very professionals we need most: persons who are already trained, experienced and interested.

The development of reliable proficiency and equivalency tests seems to be the most effective way through this maze of problems. Such tests could be an invaluable augmentation to present-day licensing and certification requirements, and would be welcomed by health-manpower employers as trustworthy evidence of a worker's skills and knowledges.

Work on this sorely needed route is now slowly going forward. At the National Institutes of Health, three professions are under study, with the sole intent of devising acceptable, valid tests for various levels of personnel in radiologic therapy, inhalation therapy, and occupational therapy. The work is national in scope and is being carried out under contract to the NIH Bureau of Health Manpower Education.

A good account of the present status of this trend can be found in a recent NIH publication[14].

CONCLUSION

Out of all the crowded shelves of reports that highlight this or that facet of all health manpower, and from all the oral accounts that often disagree, several points gradually become clear. One is that we have learned what we

don't need as well as what we do. We do not need a plethora of surveys. Linear projections of manpower are not useful to most planners. And in most instances we do not need more academic instruction for most types of health personnel, but we do need more relevance and refresher courses.

We also need better utilization of employed health professionals, and more versatility instead of less. We need forecasts based on the factors that actually influence health manpower needs. We need to bring employers and educators together more often, and we need to consider accepting their combined judgments without an array of documented justification.

Above all, especially with the advent of health-education consortia, we need to replace the old, evolutionary trial-and-error methods of training individuals with a workable, implemented methodology. We have the methodology in task analysis, and we know that the tasks and their elements remain quite stable, regardless of their combinations, and regardless of the delivery systems.

Perhaps it is time, now, for us to concentrate our efforts on learning—and disseminating—more information about these basic units called tasks.

APPENDIX: "The Side Effects of Hasty Action"

One of the endlessly recurring problems in health-manpower development has been our common susceptibility to pressures for immediate results. In this country we take pride, and justifiably so, in our ability to take effective action in a hurry when we want to do so. Once the pressure eases, however, we are not in the habit of taking another look at the side effects that may have been growing and developing their own new pressures.

A disturbing example of this oversight has been our over-production of highly skilled engineers, of teachers, and now of many health workers. In 1954 Sputnik rocketed us to meeting the need for engineers, and we neglected to read the signs of the middle and late 60's. The baby boom of the late 40's and 50's left us frantic for more teachers—and we produced them. But who was reading the national birth-date data and making plans to find related fields where persons interested in teaching could be well utilized? How many of them would now be excellent baccalaureate nurses had they had the opportunity to switch fields while still in school? (The first two years of baccalaureate nursing programs seldom include any nursing courses as such.)

The answers that occur to many of us now may or may not have worked at the time, of course. But it is clear now that *at* the time, we were not building in any options to the routes we selected.

At the time of this writing (January 1973) this nation has a surplus of many kinds of health workers, especially the two-year R.N.'s. The surplus condition does not apply to every community and some states in the South are still having difficulty. In general, though, it means that we have indicated

to many, many students that there are available jobs in the nursing field–and there are not. It is hard to justify continued production on the grounds that the whole picture might change in a year, or that we are waiting for someone to tell us what the "system" is going to be, or that there are thousands of persons not now receiving the care they should have. The current fact is that few jobs are going begging for occupants. The point is that we are now training students who trust the counseling they receive, that there are jobs waiting for them when they complete their training. If this is true, then why are so many looking and not finding jobs, despite the notorious turnover rate in this profession?

Another occupation under discussion but not widely adopted yet is that of the Physician's Assistant. In the past three years, this new occupation has received almost as much attention as the baseball scores. Once again, it was triggered by the demands for medical services that could be paid for and by the inability of physicians, who are also human beings, to work consistently more than their optimum levels will allow.

Translating this into a systems approach, the purpose becomes clear: We need more people who can give medical services. We then assume that this must be under the direct supervision of the physician–that the work, indeed, would be an extension of what the physician would do himself. Our goal, then, becomes the training of assistants to this physician. And our objectives would be to place these individuals in a physician's office or in a hospital where they would then be paid in accordance with their skills. All along the line, assumptions must be made about the constraints that will be imposed as we move into action.

We have good historical evidence that we can develop the knowledge of a physician's tasks and determine which can be safely delegated. We know that, even if we cannot put out hands on that knowledge, we can start from scratch and eventually do very well.

However, there is no historical evidence to point our way when we assume that physicians will actually hire assistants. They have not had that option before. This is new. Like all employers, physicians will weigh the advantages to be gained against the disadvantages, and they will do so from their own widely-varying points of view. For example, malpractice liability must be considered, and the assistant's salary, and patient acceptance, and physician *interest* in having an assistant. This last may be quite an influential point, when one recalls that a private practitioner is in business for himself because that is how he wants to work. Private practice gives him complete control over who works for him and what they do. Physicians who have other preferences are in group practices, or work full time in an organization, either public or private.

The Physician's Assistant is an alluring concept, especially in view of the probable appearance of national health insurance of some kind within the next few years. People who are not physicians are likely to agree on that

point. As usual, no one is quite sure what the patients think or what the private practitioners will actually do; and so the talk continues.

Fortunately, although there are over 100 training programs called "physician's assistant," and ranging from three months to over three years, we have not embarked on a systematic program to train workers in this new occupation. The Federal government has wisely opted to fund a selected number of training programs around the country–and, presumably, see what happens. Meanwhile, the National Institutes of Health has embarked on an impressive program of compiling task information on physician activities and of struggling with the monumental mountain of problems involved in getting that data on computers.

In developing any new occupation it is essential that we look closely at three things: the parameters that will determine the extent of the worker's activities (if he himself does not determine this, what are the constraints, and who enforces them?), the knowledge required to perform all the tasks within those boundaries (remembering that the knowledge actually acquired generates the results, and so a list of desired results is not enough); and the continuing economic support for that occupation: Who will pay for it? If all three of these constraints are not clearly worked out in advance, a new occupation will develop so many side-effect symptoms that we will have new problems to solve along with the old one.

We have seen this happen over and over again in new careers jobs, where in the rush of expedience jobs were built at the lowest end of the job hierarchy with little thought given to what would happen next. Workers do not progress without additional knowledge, and also a number of other attributes–not all of which are subject to academic training.

The development of new occupations, then, or of reliable ways to delegate tasks to occupations already established, or the restructuring of curricula and course content to bring them in alignment with the actual needs of a job, all require *analysis* of the knowledge necessary to perform each task of the job. And at every step of the way, it is essential to remember that the *job* is the central point.

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Social Regulation of Health Manpower

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Growing concern with improving health care for all the American people has led to an intense public examination of the ways in which health manpower is regulated. The pluralistic system of health services in the United States has engendered multiple means of regulating the qualifications of personnel – means that intervene in the educational and health-service system at various points and in different ways. From the time a health worker obtains his basic preparation through the time he performs in the health-service system, numerous regulatory mechanisms operate, with varying degrees of effectiveness.

The mechanisms for regulating the qualifications of personnel are both governmental and voluntary. They have evolved at various times in response to particular needs. Licensure, the principal governmental mechanism, originated when patterns of providing health care were developing based on the entrepreneurial philosophy of laissez-faire and on the teachings of the Christian religion with its provision for charity patients.[1] Today, licensure and related voluntary mechamisms of regulating health personnel are called on to serve in a vastly changed system of health services, with steadily increasing organization and social financing of health services in process. The climate of opinion increasingly stresses equity in provision of health services, full public accountability, and recognition of health care as a fundamental human right. This is the temper of the times to which the regulatory system for health manpower must respond.

The system of health care determines in large part the numbers and kinds of personnel needed, how different kinds of personnel are used and the types of safeguards required for performance by various categories of personnel[2a, 2b, 2c, 2d, 2e]. Multiple, separate and segmented public and private agencies and numerous isolated solo practitioners' offices may be unable to employ a full range of allied health personnel. But a highly organized system, with care provided by group practices, hospital outpatient departments, free-standing clinics and health-maintenance organizations, linked to various kinds of inpatient facilities, tends to maximize opportunities for a wide variety of allied health personnel within components of the system and within the system as a whole. An organized system permits use of each member of the

health team at his maximum level of competence. Adequate supervision is facilitated by an organized framework and permits personnel with less training to perform a wide range of tasks safely.

At the same time, of course, the kinds and quality of health manpower are important for the health-service system. Since the health-care industry is a labor-intensive industry, use of personnel in an efficient and economical way has a marked impact on the costs of services. Using the right person in the right job may hold the line on costs; it may expand the capacity of the system to provide an increased quantity of service; and it may improve the quality of care provided. The functioning of health personnel is crucial because, in the last analysis, the quality of health services depends on the performance and dedication of the individuals who provide the care.

Key questions concern the social regulation of health manpower:

(1) Are current mechanisms for social regulation of health manpower adequate to meet the need for rational and effective production of and performance by various kinds of health manpower?
(2) To the extent that current mechanisms are deficient, how should they be improved to fit modern health services as they are increasingly provided in an organized framework?

This chapter provides an overview of the social mechanisms for regulating health manpower. Seven kinds of regulation are described:

(1) accreditation of educational programs and institutions,
(2) licensure,
(3) certification and registration,
(4) specialty certification,
(5) regulation of work settings,
(6) requirements of payment programs and
(7) continuing qualifications.

Credentialing of health manpower, a happy term coined in the National Center for Health Services Research and Development for the imprimatur of social approval[3], involves all these means of regulation. Each has its own background, its own constellation of issues and even its own mystique. Many of the mechanisms are interrelated. Together they constitute the complex subsystem of regulation of health personnel within the larger system of health services.

In order to turn the spotlight on credentialing as it now exists and as it may develop in the future, each of these seven kinds of regulation is discussed in terms of

(a) the current picture,
(b) problems and issues, and
(c) proposed strategies for improvement.

Finally, some specific judgments and recommendations for improvement of the regulatory system are made.

ACCREDITATION OF EDUCATIONAL PROGRAMS AND INSTITUTIONS

Accreditation is defined as "the process by which an agency or organization evaluates and recognizes a program of study or an institution as meeting certain predetermined qualifications or standards."[4] Accreditation is of two kinds – institutional and specialized. Institutional accreditation is concerned with the quality of the total institution and is illustrated by the accreditation conducted by the six regional associations of colleges, universities and schools in the United States[5]. Specialized accreditation is concerned with a particular field of study and is illustrated by accreditation of dental schools by the American Dental Association or of nursing schools by the National League for Nursing[6].

In the United States accreditation developed as a voluntary mechanism of approval of educational programs and institutions by educators and members of the respective professions, in contrast to governmental approval of schools in other countries[7]. As professional associations were formed, beginning in the mid-1800's, each association undertook to regulate the schools or program of study in its field and to establish educational standards for fellow practitioners[8]. As Selden points out,

> . . . when accreditation was initiated, conditions were conducive for the creation and implementation of what was then a new method of social control. At that time there were very few health professionals other than physicians and dentists, and they comprised well over 90 percent of all health professionals[9].

But today for every physician there are about ten other actively employed health personnel[10]. Not only are numbers of allied and auxiliary personnel expanding but also new occupations are emerging, health educational programs are increasing in numbers and types, and accrediting agencies are multiplying.

Between 1900 and 1930 accreditation of health educational programs was begun for seven fields in the following order: medicine, osteopathy, dentistry, podiatry, nursing, occupational therapy and physical therapy; between 1930 and 1960 for another 14: social work, medical technology, occupational therapy assistant, pharmacy, optometry, medical record librarianship, practical nursing, X-ray technology, public health, veterinary medicine, psychology, nurse anesthesiology, medical record technology and radiation therapy technology; and since 1960 for the following occupations: audiologist, blood bank specialist, certified laboratory assistant, community health educator, cytotechnologist, dental assistant, dental hygienist, dental technologist, environmentalist, histologic technician, hospital administrator, inhalation therapist, medical assistant, operating room technician, optician, orthopedic physician's assistant, nuclear medicine technician, nuclear medicine technologist, physical therapy assistant, speech pathologist and urologic assistant[11]. Thus accreditation programs have come to embrace almost the total spectrum of health manpower.

As accreditation programs multiplied – and this multiplicity was a symptom of disease in the accrediting process that led to the landmark Study of Accreditation of Selected Health Educational Programs (SASHEP) completed in 1972[12] – accreditation came to serve a number of purposes. The Accreditation and Institutional Eligibility Staff of the U.S. Office of Education has defined nine functions of accreditation[13]:

(1) certifying that an institution has met established standards;
(2) assisting prospective students in identifying acceptable institutions;
(3) assisting institutions in determining the acceptability of transfer credit;
(4) helping to identify institutions and programs for investment of public and private funds;
(5) protecting an institution against harmful internal and external pressures;
(6) creating goals for self-improvement for weaker programs and stimulating a general raising of standards among educational institutions;
(7) involving the faculty and staff comprehensively in institutional evaluation and planning;
(8) establishing criteria for professional certification and licensure and upgrading courses offering such preparation; and
(9) providing one basis for determining eligibility for Federal assistance.

Although all these functions concern the quality of education, some are divergent, one from the other. Performance of one function may require criteria quite different from those applicable to other functions. For example, use of accreditation to identify potential recipients of Federal funds involves considerations different from those in use of accreditation to certify acceptable standards of educational quality[14].

Current Picture

Accreditation of health educational programs, designed to put a stamp of approval on the educational preparation provided to personnel entrusted with the lives, health and safety of the public, has become mired in multiplicity, fragmentation and complexity. Numerous accrediting bodies of professional and educational associations approve or disapprove academic and practical programs for different health occupations[15]. In some instances several rival accrediting bodies operate in the same field[16]. Standards by which accreditation is conducted vary, as do the thoroughness and frequency of the reviews. Sheer numbers of accrediting agencies and their variable characteristics tend to defeat the very purpose for which they were founded – authoritative assurance of educational quality.

The total numbers of health eduational programs offered, accredited or seeking accreditation are not known because these numbers are changing continually. But it is known that for selected health fields the number of

accredited programs has grown by 28.4 percent from 1956 to 1970[17]. In 1970 the American Association of Junior Colleges reported 2,132 allied health and related programs with another 916 programs planned for operation within the next three years[18]. These figures do not begin to reflect the many health educational programs in other settings – in vocational and technical schools, in four-year colleges, in universities and their extensive programs and in governmental and voluntary hospitals and other institutions.

Growth in accreditation is shown not only by increased numbers of educational programs for existing categories of health workers[19] but also by development of new kinds of health workers. Each time a new specialty is projected a new educational program is required and therefore expanded accreditation[20].

Among the many accrediting agencies, two professional groups have undertaken accreditation of educational programs for multiple allied health occupations. The Council on Dental Education of the American Dental Association accredits educational programs, and publishes lists of approved programs, for three categories of allied dental personnel (dental hygienists, dental assistants and dental laboratory technicians) and may soon be accrediting programs for two more categories (dental nurses and dental therapists). The Council on Medical Education of the American Medical Association accredits educational programs, and publishes lists of approved programs, for at least 18 categories of allied health workers through joint action of associations of the particular medical specialty and of allied health professionals[21]. The process of initiating and conducting a program of accreditation also involves action of five decision-making bodies of the American Medical Association – the AMA House of Delegates, the Council on Medical Education, the Advisory Committee on Education for the Allied Health Professions and Services, the Department of Allied Medical Professions and Services, and the AMA Council on Health Manpower. Just within a single professional organization, a multiplicity of bodies is concerned with accreditation of allied health educational programs.

The vast majority of AMA-accredited programs are in hospitals or laboratories, where enrollments are generally small and teaching staffs characteristically have primary responsibilities other than education[22]. Aside from the administrative problems inherent in accrediting numerous small programs, many of which are not sponsored by educational institutions, a fundamental policy question has been raised:

> The practice of conducting a separate accreditation program for each occupational speciality is open to charges that it fragments allied health educational efforts in junior and community colleges and four-year colleges and universities, which are increasingly assuming primary responsibility for the training of allied health workers. Such fragmentation seems likely to result in more narrowly trained workers whose lateral and upward mobility and utilization in the health fields may be limited[23].

Although the general process of accreditation has been criticized as permitting each sponsoring organization to protect its own interests and the interests of its members jealously[24], two organizations, in effect, accredit the accreditors – the U.S. Office of Education and the National Commission on Accrediting.

In part to determine eligibility for Federal funding, the U.S. Commissioner of Education is required to publish a list of nationally recognized accrediting agencies that he determines to be reliable authority for the quality of education offered[25a, 25b]. Agencies make application for inclusion on this list and must meet certain predetermined criteria. The criteria promulgated in 1969[26] are currently being revised to raise standards and to strengthen public accountability.

Unlike the U.S. Office of Education, the National Commission on Accrediting is a voluntary organization. Composed of representatives of about 1,500 colleges and universities, the National Commission serves as a controlling and coordinating body in the field of accreditation. It does not itself accredit educational institutions or programs but recognizes specialized agencies to grant program accreditation in 37 fields. The National Commission recognizes the AMA Council on Medical Education and the ADA Council on Dental Education for accreditation of a number of allied medical and dental programs, respectively.

One final point should be noted before turning to problems and issues in accreditation. Although the U.S. Office of Education and the National Commission on Accrediting exercise some control over accrediting agencies, approval is not mandatory. Many accrediting agencies, including the AMA Council on Medical Education for some fields, operate without meeting the criteria of the U.S. Commissioner of Education and without authorization from the National Commission on Accrediting.

Problems and Issues

The recent Study of Accreditation of Selected Health Education Programs identified six main problems in accreditation. Accompanying the following summary of SASHEP's work is my plea that the reader turn to the Commission Report of SASHEP for its own concise and readable text[27].

Issues and answers from SASHEP are as follows:

(1) *Accountability of Accreditation.* Identification of the principals in the accreditation process (to whom should accrediting be responsible) is an important question because private agencies are functioning in a public role. In the past accreditation has been deemed a responsibility of the professions themselves but the view is gaining currency that, in the words of SASHEP, "the accrediting process must be held accountable not merely to the health professions but to a much broader constituency (including) the educational institutions that offer programs of study in health professional fields, the

potential employers of health professionals, the Federal and state governments, students, and ultimately the public-at-large."[28]

(2) *Structure of Accreditation.* This issue is also related to the public function of private agencies in accrediting. Boards of accrediting bodies have rarely contained lay members or representatives of other health professions or agencies. Jurisdictional duplication has occurred, and strains have developed among the health professions, particularly between physicians and allied health workers. Resolution of these problems will require development of a structure for accreditation with capacity to coordinate or integrate inefficient and fragmented accreditation.

(3) *Financing of Accreditation.* The cost of accreditation has been borne largely by the health professional organizations but it is becoming increasingly burdensome. The base of financial support should be broadened to include the institution or program of study. The educational institutions may be willing to support accreditation if the process is improved.

(4) *Expansion of Accreditation.* With the development of new health professions and the establishment of different levels of study within traditional fields, accrediting programs are proliferating. Effective accreditation of allied health educational programs in the future will require a mechanism with sufficient authority and capacity to integrate new accrediting programs into a unified framework.

(5) *Research in Accreditation.* Little research has been done in this field. Subjective judgments have governed decisions. In view of dramatic changes occurring in education, e.g., universities without walls, course alternatives and credit by examination, research is urgently needed to determine the viability and relevance of traditional criteria for accrediting educational programs. In the words of SASHEP,

> any future system of allied health accreditation must be structured to overcome organizational, financial, and attitudinal barriers to needed research . . .[29].

(6) *Relationship of Accreditation to Licensure and Certification*[30]. State licensure of the health professions depends on voluntary accreditation of educational programs. Many licensing statutes require graduation from an accredited school and licensing boards rely on lists of institutions accredited by national, specialized accrediting agencies. Voluntary certification of personnel is generally conducted by the same agencies that accredit educational programs. Many certifying agencies permit only graduates of accredited programs to take the examination for certification. Accreditation, licensure and certification are thus interrelated. They are three links in the chain of social regulation of health manpower. Since licensure relies on accreditation, and accreditation is tied to certification, the shortcomings of one mechanism tend to be carried over into other mechanisms. The interrelationships thus weaken, rather than strengthen, the overall system.

Proposed Strategies for Improvement

As prelude to its recommendations, SASHEP enunciated certain basic policies relating to the purposes, operations, organization, monitoring, structure and financing of accreditation which it deemed central to improvement of the accreditation process. Formulation of these policies led SASHEP to conclude:

– that specialized accreditation of health educational programs is a necessary and vital service;

– that fundamental changes in the organization of accreditation of allied health educational programs are needed to improve interprofessional relations, to assure conduct of accreditation in the public interest and to enhance equity among the parties with a legitimate interest in accreditation;

– that physicians must be intimately involved in accreditation but final authority for standards and accreditation should rest with a body that represents no single profession;

– that accreditation of allied health educational programs should promote coordination among the health professions;

– that reorganization of accreditation of allied health educational programs should promote coordination among the health professions;

– that reorganization of accreditation of allied health educational programs is necessary to improve efficiency and effectiveness;

– that the structure of accreditation must recognize the need for flexibility and innovation; and

– that accreditation policies should be established by a national monitoring body and all accreditation programs for study for all allied health occupations should conform to these policies.

In pursuance of these conclusions, SASHEP recommended the establishment of an independent, broadly representative Council on Accreditation for Allied Health Education to sponsor, coordinate and supervise accreditation of selected health educational programs and to relate accreditation to curricular development. Physicians, allied health professionals, educators, representatives of institutional employers, public representatives, other health professionals and representatives of the Federal government would be included in the proposed Council. The Council would be cooperatively operated by the 15 allied health fields that were the focus of SASHEP with others that might be expected to join.

Implicit in the report is the idea that the National Commission on Accrediting, now being reorganized, would serve as the national monitoring body recommended. It might be added that the U.S. Office of Education will presumably continue to perform its important role of strengthening public accountability and the ethical and educational standards of accrediting agencies. As the various segments of the health and educational communities move to develop a strengthened system of accreditation along the lines recommended by SASHEP, it is hoped that the accrediting process will utilize

a combination of practitioners and educators to assure the quality of education. A balanced blend of practitioners and educators is necessary, the first to assure input of needs and issues from the world of practice, and the second to assure input from science and scholarship – in other words, the all-important blend of theory and practice.

LICENSURE

Licensure is defined as "the process by which an agency of government grants permission to persons to engage in a given profession or occupation by certifying that those licensed have attained the minimal degree of competency necessary to ensure that the public health, safety and welfare will be reasonably well protected."[31] As an exercise of the police power of the state to protect the public health, safety and welfare, licensing laws were designed to protect the public against incompetent and unethical practitioners by requiring legally enforceable standards for entrance into and continuation in the professions licensed[32]. In this way it was intended that licensing laws would guard against quackery, commercial exploitation and ignorance.

Medical practice acts were the first licensing laws[33a,33b] and were developed when the provision of medical care was largely an entrepreneurial matter. In 1873, when Texas established a state board of medical examiners, few other controls existed on the quality of medical services purveyed by solo practitioners to a helpless public. The pattern was adopted of enforcing minimum standards for licensure through independent governmental agencies composed mainly of private practitioners representing state medical associations – a pattern that has persisted to the present day, although other regulatory mechanisms have been added[34].

In 1900 when these early laws were passed, physicians constituted 35 percent of all health manpower[35] and the many kinds of allied health personnel that exist today had not yet developed[36]. Understandably, therefore, the medical practice acts authorized physicians who met the qualifications for licensure to perform all functions in health service. As new kinds of health workers developed and sought licensure[37], they were authorized to perform those functions for which they were qualified. Thus licensing laws for nurses, pharmacists, optometrists, physical therapists and other personnel carved out segments of health service as the appropriate scope of functions for each category[38].

Licensing laws are of two kinds – mandatory and permissive, sometimes referred to as "compulsory" and "voluntary."[39] Mandatory, or compulsory, licensing laws require all who engage in the profession to be licensed; therefore any action within the scope of practice defined by the licensing law by one not licensed may be construed to be a violation of the licensing law and may be subject to criminal sanction. Permissive, or voluntary, licensing laws permit persons to work in the occupation without being licensed provided they do not use the title. Under a permissive licensing law for

professional nurses (and eight states and the District of Columbia had such laws as recently as 1968[40], unlicensed personnel may engage in professional nursing provided they do not use the title, wear the pin, cap, or other insignia of a professional nurse, or represent themselves as such.

The trend is for permissive laws to become mandatory. Once an occupational group becomes established, it tends towards the exclusion of others. Licensing laws, particularly mandatory ones, thus have economic implications.

The contents of licensing laws for all occupations are similar because all licensing laws are modelled after the medical practice acts. Each law establishes the licensing agency, the composition of the board, the means of selecting its members, and specifies the administrative status of the agency (whether an independent board or part of a department of state government) and its jurisdiction (occupation or occupations licensed by the agency)[41a, 41b].

Each law specifies minimum qualifications for entrance into the occupation. These minimal requirements relate to personal qualifications (age, residence, citizenship, character) and to educational qualifications (course requirements, completion of an approved program, experience, examination, etc.). A definition of practice sets forth the authorized scope of functions for the occupation. Also specified are conditions for renewal of license, grounds and procedures for suspension, revocation and reinstatement of licenses, and provisions for recognition of licenses of other states.

Current Picture

In 1971, 25 health professions and occupations were licensed in one or more states[42]. The number of licensed occupations varies from state to state, California having 25 licensed categories, New York 19, and no state having fewer than 14. The following categories are licensed in all states: dental hygienists, dentists, professional engineers (including those in the health field), optometrists, pharmacists, doctors of medicine, doctors of osteopathy, podiatrists, veterniarians, professional nurses, and practical nurses[43]. Nursing home administrators are now licensed in 49 states because of Federal requirements under Title XIX of the Social Security Amendments of 1967. Chiropractors are licensed in all but two states (Louisiana and Mississippi). Clinical laboratory personnel (directors of laboratories or medical technologists or both) are licensed in 14 states and radiologic technologists in three. No state licenses occupational therapists, dietitians, or dental assistants.

Following World War II many new health occupations developed, e.g., inhalation therapist, nuclear medical technologist, cytotechnologist, medical engineering technician and others[44]. Striving for recognition, some of these groups sought licensure and, in a few instances, obtained it. For example, Arkansas licensed inhalation therapists; ten states licensed physical therapy assistants[45].

Physician's Assistants. In 1969 Colorado became the first state to pass a licensing law for physician's assistants. The Colorado Child Health Associate Law authorized the medical licensing board to certify specially trained child health associates to provide medical care to children under the supervision of a physician, mainly in the physician's office[46]. The statute spells out the functions that the child health associate is permitted to perform in care of well children, provision of minor medical care to sick children and prescription of non-narcotic drugs. The physician under whom the child health associate works must be approved for this purpose by the board and may supervise only one associate at a time. The child health associate may practice in the physician's office only when the physician is "directly and personally available" and outside the office only in the personal presence of the physician, in the routine care of newborn infants or in follow-up care of a patient under specific directions of the physician.

Interestingly, this statute was passed in one of the four states that had enacted a so-called "general delegation" statute, specifically permitting delegation of medical tasks to nonphysician personnel. In the 1960's, Arizona, Colorado, Kansas and Oklahoma had enacted statutes that exempted from the medical practice acts certain delegations of functions[47]. Each of the four statutes varies in its provisions as to who can delegate, to whom, and as to the amount of supervision required. The Oklahoma statute, the most permissive of the four, exempts from the medical practice act "service rendered by a physician's trained assistant, a registered nurse, or a licensed practical nurse if such service be rendered under the direct supervision and control of a licensed physician."[48] (Oklahoma's use of the term "physician's trained assistant" antedated the contemporary physician's assistant movement.) Apparently, the Colorado Legislature did not think that the authorization for delegation of functions performed under the "personal and responsible direction and supervision of a person licensed . . . to practice medicine or to practice a limited field of the healing arts"[49] sufficient to authorize the functioning of a child health associate without enactment of a specific law.

Nevertheless, as the movement to train and use physician's assistants gathered momentum, a number of states enacted delegation amendments to their medical practice acts[50]. States that have enacted such exceptions are: Alaska, Arizona, Arkansas, Colorado, Connecticut, Delaware, Florida, Kansas, North Carolina, Oklahoma and Utah[51].

Another mechanism for authorizing the functioning of physician's assistants has been the enactment of legislation authorizing the State Board of Medical Examiners to approve training programs and the physician's use generally of no more than two graduates of such programs. States that have enacted such amendments to their medical practice acts are Alabama, California, Florida, Idaho, Iowa, New Hampshire, New York (with some variation), Oregon, Washington and West Virginia[52].

These approaches to authorize use of a new category of health personnel were adopted in order to avoid enactment of another licensing law containing still another rigid scope of functions, the bounds of which could be overstepped by physician's assistants and others only at their peril. Protection of the public was sought through various devices – approval of the educational program, approval of the physician-user, limitation in the number of physician's assistants that a physician is allowed to supervise, specification of authorized functions by statute or regulations, and requirements for supervision. Underlying the whole innovation, of course, is the restraint on delegation exercised by fear of malpractice suits. Some of these safeguards have been criticized. The requirement of prior approval of the educational program has been attacked as giving excessive weight to educational inputs rather than to practice outputs[53]. The "over-the-shoulder" supervision required under some statutes has been criticized as too inflexible for effective use of physician's assistants[54].

Legal authorization for physician's assistants in this fashion without enactment of new licensing laws was a response to the growing concensus among health professionals on the need for a nation-wide moratorium on licensing laws for new categories of health personnel. The American Hospital Association, the American Medical Association, the National League for Nursing, and the Department of Health, Education and Welfare[55] had called for a two-year moratorium on new licensing laws having statutorily defined scopes of functions in order not to add to the multiplicity of rigid definitions of practice that inhibit innovative use of personnel. Amendments to existing licensing laws to permit expanded functions or to authorize the functioning of new kinds of health personnel are not banned by the moratorium; in fact, such expansion of functions is encouraged. The purpose of the moratorium is to provide time within which to develop a long-range solution to the need for more flexible and innovative use of personnel than is currently allowed under the licensing laws[56].

Authorization for Expanded Functions. One major recent development in licensure, then, has been the enactment of exemptions to the medical practice acts to authorize the functioning of physician's assistants. Another and equally significant breakthrough has been amendments or interpretations of existing licensing laws to authorize expanded functions for licensed personnel, particularly dental hygienists and professional nurses.

Change in the use of dental hygienists and dental assistants has been slow in occurring in view of the acute shortage of dentists in the United States, the declining ratio of dentists to population and the uneven distribution of dentists[57a, 57b]. This shortage of dental manpower is made even more grave by accumulated unmet dental needs of staggering proportions in the population[58], high cost of dental care and limited insurance coverage for dental services. The late Dr. George James, testifying in favor of fluoridation

of New York City's water supply in 1963, stated that in poverty areas of large U.S. cities a majority of the children suffer from almost total dental neglect.

Despite these needs, dental hygienists, trained in at least a two-year curriculum of dental hygiene, were restricted to narrow functions – removal of calcareous deposits, accretions and stains; application of topical agents; and in some states taking x-rays or assisting the dentist in operative or surgical procedures. In view of the excellent dental care provided by school dental nurses to children in New Zealand, Malaysia and many other countries[59], dental hygienists in the United States are clearly overtrained for the limited functions they are allowed to perform.

In 1967 Iowa became the first state to amend its dental practice act to authorize dental hygienists to perform functions in accordance with their training under the supervision of a licensed dentist, such functions to include but not be limited to those specified in the act[60]. Since that time dental practice acts of 24 states have been amended or interpreted to permit expanded functions for dental hygienists or dental assistants or both[61]. Ten of these states now have what are called "open" dental practice acts, which permit the dentist to delegate to dental hygienists or dental assistants any procedure except those that require his knowledge or skill[62]. Under such "open" statutes the dentist is not limited to a list of specific procedures that he may delegate, although some procedures may be specifically excluded. This long overdue modernization of the dental practice acts to reflect current education and technology will permit a more rational use of the skills of dentists and other dental personnel.

In the field of nursing the issue of the scope of functions allowed by the nursing practice acts has arisen in connection with the development of the nurse practitioner and the expanded role of the nurse. Nurse practitioners are fully qualified, professional, licensed Registered Nurses with special skills to:

– determine the patient's current health status by completing a history and physical examination, and instituting appropriate screening and diagnostic measures;

– providing health supervision and guidance to individuals (and their families) whose health status is normal; this would include maternity care, family planning, and wellness care of children, adults and the aged;

– manage patients with chronic or gerontological conditions, with medical consultation available;

– provide emergency and some degree of medical care; and

– institute appropriate follow-through upon determining the need for patient referral to the physician or other resource[63].

Nurses functioning in this expanded role have demonstrated that a significant part of the work of primary physicians can be delegated without loss of quality of care. Not only is the productivity of physicians increased by use of nurse practitioners but also the quality of care provided is enhanced. Chronically ill patients whose rehabilitation services were provided by nurse

practitioners had fewer broken appointments, fewer days of re-hospitalization and a higher rate of return to employment than similar patients cared for by physicians[64a, 64b]. Careful evaluation of the function of pediatric nurse practitioners has shown that the contribution of such nurses improves the delivery of health care to children[65].

Public health nurses and nurses in occupational health have long functioned in ways that resemble the role of the nurse practitioner. More recently triage nurses in outpatient departments and emergency rooms of hospitals and nurses employed as clinic managers have functioned substantially in this expanded role[66a, 66b]. The role is not new but represents a logical extension of the functions of the nurse, who once could not start intravenous medication or do cardiac resuscitation and now, with greatly expanded training, performs extremely complex tasks in intensive-care units and in many other settings.

This evolution in nursing functions led the Secretary's Committee to Study Extended Roles for Nurses, appointed by HEW Secretary Richardson, to conclude that no new legal authority is needed for nurse practitioners. But this view is not unanimous. Nursing functions can be divided broadly into two categories – decision-making functions and execution of tasks. Clearly, the nurse has long done both. But the legal issue is whether the kind of decision-making the nurse practitioner is qualified and called on to do constitutes diagnosis, treatment or prescribing, as reserved to the physician under the medical practice acts[67]. Perhaps the solution lies in distinguishing between medical diagnosis and nursing diagnosis, between medical prescription and nursing prescription, as has been proposed[68] and, in fact, done in New York[69].

As a practical matter the definition of professional nursing in many nursing practice acts is broad and covers a wide variety of functions. Nevertheless, physicians have hesitated to delegate functions beyond well-established custom and practice, and nurses have been concerned that undertaking broadened functions without clear authorization might expose them to liability. This fear of liability may not be unfounded. In 1971 the Attorney General of Arizona issued an opinion that the functions projected for the nurse practitioner would be in violation of both the medical and nursing practice acts of Arizona[70].

Various ways of authorizing the function of nurse practitioners have been suggested[71] and some have been adopted, although the issue is still unresolved in many states. In New York State the Legislature amended the definition of professional nursing practice to include

> diagnosing and treating human responses to actual or potential health problems through such services as casefinding, health teaching, health counseling, and provision of care supportive to or restorative of life and well-being, and executing medical regimens as prescribed by a licensed or otherwise legally authorized

> physician or dentist. A nursing regimen shall be consistent with and shall not vary any existing medical regimen[72].

Moreover, the new law provides:

> "Diagnosing" in the context of nursing practice means that identification of and discrimination between physical and psychosocial signs and symptoms essential to effective execution and management of the nursing regimen. Such diagnostic privilege is distinct from a medical diagnosis[73].

Idaho followed another route. It amended its nursing practice act to exempt professional nurses from the statutory prohibition on medical diagnosis or prescription of therapeutic or corrective measures when the diagnosing and prescribing activities are authorized by rules and regulations jointly promulgated by the state medical and nursing boards[74]. Still other states are considering action by Joint Practice Commissions, composed of representatives of the medical and nursing professions.

One category of nurse practitioner has been authorized to function in an increasing number of states. Prior to 1967 the nurse-midwife was licensed only in New Mexico, the eastern counties of Kentucky and New York City[75]. Since that time Florida, Ohio, Pennsylvania, Utah, Puerto Rico and the Virgin Islands have passed legislation licensing nurse-midwives[76]. Other states have authorized their functioning by other mechanisms, e.g., joint statements of the medical and nursing professions and rulings of state boards of nursing so that, in all, 17 states and three jurisdictions (Puerto Rico, the Virgin Islands and New York City) have authorized the functioning of nurse-midwives[77].

Recognition of Equivalent Qualifications. Other developments in licensure have been designed to ease educational standards for initial entrance into certain health occupations and to recognize alternative qualifications. New York State, for example, provides that experience and training other than that usually prescribed may be used as alternative qualifications for examination in x-ray technology[78]. California has enacted recognition of equivalency qualifications for

(a) medical corpsmen who seek to become registered nurses[79],
(b) candidates seeking licensure as vocational nurses[80], and
(c) licensed vocational nurses who seek to become registered nurses[81].

Problems and Issues

The problems and issues associated with licensure relate to two features of health manpower – supply and quality. Supply concerns total numbers of various kinds of personnel, of course, and therefore involves standards for initial entrance into the occupation and the equivalency qualifications just mentioned. Supply also concerns the geographic distribution of personnel, which involves provisions for interstate recognition of licenses. Use of personnel, with the knotty question of scope of functions, is an aspect of

supply. Quality of personnel is affected by standards for initial entrance into the occupation, to some extent by regulation of mobility, by definitions of practice, and by control of qualifications on a continuing basis.

In reviewing the problems engendered by the licensing laws, it may be helpful to consider to what extent these problems can be solved by changes in the system of regulating health manpower and to what extent they require changes in the educational system or in the system of health services itself.

(1) *Standards for Initial Entrance.* Many licensing laws contain specific educational requirements. Originally inserted in the statutes to assure the quality of educational preparation, in many instances these requirements now block educational innovation or restrict entrance of candidates into the field.

Two examples illustrate the problem. The requirement of a one-year internship as a prerequisite for licensure was designed to assure necessary clinical experience in a hospital following graduation from medical school. At the time this requirement was incorporated in the medical licensing laws it represented a step forward and gradually all but 17 states came to require it[82]. But with changes in the medical curriculum to provide earlier experience with patient care and with the growing view that postgraduate medical education should be a continuum[83], the requirement of an intership *per se* is a barrier to educational change. Another example concerns the many individuals with practical experience in technical positions in health services but without sufficient formal education to qualify for licensure in one of the health occupations[84]. The medical corpsman returned from military service is such a person and his availability and experience have contributed to the development of physician's assistant programs.

Recent legislation, as mentioned, has recognized the need for allowing recognition of alternative qualifications. Such authorization should enable licensing boards to administer equivalency qualifications with fairness to applicants and with safety for the public. Immensely helpful in this novel administrative task will be the development of adequate proficiency examinations.

(2) *Opportunities for Lateral and Vertical Mobility.* Closely related to the problem of initial standards for entrance into an occupation is the problem of lateral and vertical mobility. Specified educational requirements generally bar movement within an occupation and between related occupations.

For example, licensed practical nurses who want to become professional nurses are generally required to start all over. They receive no credit for their education or experience in practical nursing. This rigidity is beginning to change but positive encouragement of lateral and vertical mobility will require not only amendment of the licensing laws but also changed professional attitudes.

(3) *Geographic Mobility.* Differing state licensing laws for each occupation stand as a barrier to mobility across state lines[85]. Although many

states provide for recognition of the licenses of other states, the requirement of an examination in some fields serves to inhibit interstate movement. Successful practitioners who are long removed from formal schooling may understandably be reluctant to face this chore. No barriers to interstate movement of nurses exist because of use for more than 30 years of the State Board Test Pool Examination, which has provided a national basis for recognition of out-of-state nursing licenses[86]. The National Board of Medical Examiners and the Federation of State Medical Boards are gradually bringing about a similar development in the field of medical licensure. It is probably only a question of time until national examinations are developed for all health occupations.

Not only do the licensing laws stand as barriers to interstate mobility but also they fail to exercise their potential to encourage movement of health personnel to medically underserved areas. Many countries require as a condition of licensure one or two years' public service by all medical graduates in a health department or in a rural area[87]. A limited move in the same direction in the United States – towards increased equity in deployment of health manpower – is the establishment of the National Health Services Corps.

(4) *Use of Personnel.* The central issue in licensure concerns the scope of functions of the many and increasing kinds of health personnel. The issue of what tasks or functions in health service may be delegated to nonphysician personnel and to which personnel, is vital because in the vastly expanded use of allied health personnel may lie the key to meeting the enormous demands for health services. Increased productivity of all members of the health team is essential.

At present the licensing laws spell out scopes of function for each occupation. The physician's scope of functions is all-inclusive but other health occupations are authorized to perform only parts of the totality. Hershey's concept of a spectrum of health functions, ranging from sophisticated tasks to simple ones, with overlapping and shared areas of practice[88], is helpful in illuminating the uncertainties created for different kinds of practitioners as to the boundaries of their respective areas of practice.

The legal authority for tasks that allied health personnel are called on to perform is particularly difficult problem not only because the defintions are vague but also because functions in health service are dynamic. Expanded education and improved technology are steadily widening the scope of functions that each occupation can safely perform. Years ago it was never anticipated that nurses would perform the complex functions that they now perform in intensive-care units. Even starting intravenous therapy was deemed a violation of the nursing practice act of New York thirty years ago[89]. Today a computer calculates the staffing pattern in a 250-bed children's hospital in ten minutes – a matter that used to take hours of nursing time. Nurses are therefore freed for other tasks.

Scope-of-practice questions are thus accentuated by progress in education and technology. The legal authority for the delegation of tasks is general. It is largely governed by custom and practice. As new tasks emerge or as old tasks are assigned to new kinds of personnel, the authority to delegate is called into question. Concern lest an improper delegation entail legal liability inhibits delegations beyond the pale of custom and practice.

Actually few courts have imposed sanctions for exceeding the authorized scope of functions of medical and nursing practice acts[90]. A few decisions are cited repeatedly for the proposition that liability can be imposed for an improper delegation[91a, 91b] but in the main these cases arise when a person is injured, not simply when an improper delegation is made. The leading exception to this statement is *Magit* v. *Board of Medical Examiners,* involving the use of trained but unlicensed physicians to administer anesthetics under the direction of a licensed physician[92]. As Carlson comments,

> . . . the incidence of claims for malpractice and disciplinary proceedings arising principally from violation of licensure statutes is probably very low given the volume of health care services delivered[93].

Whether well-founded or not, the fear of malpractice suits is sufficient to deter innovative use of personnel beyond established custom and practice in the absence of clear authorization.

(5) *Continuing Quality of Personnel.* Nearly all licensing laws grant lifetime licensure unless the licensee is guilty of criminal conduct or gross incompetence[94]. Renewal of a license generally involves only filing of a form and payment of a fee. In 1967 the National Advisory Commission on Health Manpower recommended that

> . . . relicensure should be granted either upon certification of acceptable performance in continuing education programs or upon the basis of challenge examinations in the practitioner's specialty[95].

Since that time, concern with the updating of qualifications has taken paths other than required continuing education or re-examination under the licensing laws. These paths will be discussed below in connection with continuing qualifications.

(6) *Public Accountability.* Although state licensing boards are governmental agencies established under state laws, they are composed mainly of members of the profession seeking licensure[96]. Medical licensing boards in some states contain token representation of state health or educational agencies and sometimes one or two public representatives[97].

While professional expertise is necessary to establish and administer technical qualification for members of the profession, many questions arising before licensing boards today involve questions of health-service organization and of public policy generally. Technical and scientific qualifications should

be evaluated by members of the profession but issues of public policy should be decided by a body of representatives of all providers of health care and of governmental agencies responsible for health services. Egelston has stated unequivocally:

> It is essential that public representatives be appointed to state licensing boards. The addition of members from other health professions would avoid arbitrary decision-making on education and job requirements by providing means for redress of grievances.
>
> There are precedents for change in licensing board composition. A few states already have broader representation on licensing boards and the Federal guidelines for licensing nursing home administrators stipulate a broadly representative board[98].

The issue of public accountability in licensure thus involves the composition of the various licensing boards and the isolation of the licensing process from other aspects of the provision of health services[99]. Public accountability also involves surveillance of the large numbers of new kinds of technicians, technologists and therapists of various kinds that have been proliferating in recent years – surgical technicians, plaster cast technicians, medication technicians, cardiography technicians, medical emergency technicians, and many kinds of assistants and aides. These new categories of health personnel are subject to no controls except the regulation of the individual institution in which they work and the remote surveillance of the Joint Commission on Accreditation of Hospitals. No means exists for validating the qualifications or specifying the appropriate functions of these new categories of personnel.

Proposed Strategies for Improvement

Not everyone agrees that changes are necessary in the licensing system for health personnel. Some hold the view that the law has sufficient flexibility to accommodate new kinds of personnel and to allow flexible delegation of tasks.

The majority view, however, is that the licensing laws need to be modernized so as to assist, rather than hinder, the provision of health care under contemporary conditions. Many of the proposals that have been made are fairly specific, can be implemented with minimal delay and command wide support. Others are more far-reaching and will entail marked departure from the current system. Here, the relatively easier adjustments in the system are first listed and then some discussion is offered of the other, more far-reaching proposals.

Among the more immediate solutions that have been offered, and actually implemented in some places, are the following[100]:

(1) Amend existing licensing laws to require recognition of equivalency qualifications and to encourage use of proficiency examinations with respect to knowledge and skills.
(2) Amend existing licensing laws to provide for a ladder of occupations in various fields and clusters of related occupations through which health workers can move with appropriate or additional education or experience.
(3) Use nationally recognized licensing examinations for each licensed occupation instead of different state examinations.
(4) Establish a national, uniform system of accrediting educational programs in all health occupations (see preceding section).
(5) Develop national model licensing codes for the health occupations for adoption by the states.
(6) Refrain from licensing additional categories of health manpower with statutorily defined scopes of functions.
(7) Expand voluntary accreditation of educational programs by professional groups.
(8) Amend the medical practice acts to authorize broadened delegation of functions, as is being done to authorize the functioning of physician's assistants.
(9) Amend existing licensing laws to expand the scope of functions for allied personnel in accordance with current or expanded training, as is being done with respect to dental hygienists.
(10) Re-examine existing licensing laws and regulations in light of current training and actual functions of health personnel so as to eliminate legal restrictions on the functions of licensed personnel and on reasonable use of unlicensed auxiliaries.
(11) Amend existing licensing laws to permit certification of new kinds of personnel, such as physician's assistants, and to authorize the functioning of existing personnel, such as nurse-midwives.
(12) License or approve the employer or user of new kinds of personnel.

More far-reaching proposals that would effect basic changes in the system of regulation qualifications of personnel include the following:

(1) Authorize licensing boards and agencies to certify new categories of allied and auxiliary health personnel and to adjust the functional spheres for each group under their jurisdiction.

The advantages and disadvantages of this approach have been summarized by Carlson[101]. On the plus side this proposal provides the prompt and flexible action of an administrative agency with expertise in health matters and with the ability to integrate new kinds of health manpower into the health service system. On the minus side is the possible reluctance of health professionals to allow incursions of new categories into their domains. Moreover, certification may be heir to all the evils of fragmented functions characteristic of licensure.

(2) Establish a statewide committee or board composed of representatives of the principal health occupations and of the public to certify new categories of personnel, to regulate innovative use of personnel and to resolve scope-of-practice questions[102].

This proposal expands the certification proposal above. Instead of authorizing multiple boards to certify new categories, the proposal would establish a single board with board jurisdiction. It therefore would facilitate the functioning of new kinds of personnel and would permit broadened delegation of functions. But implementation would probably engender conflict among the various occupational groups. Moreover, there is no assurance that, if the scheme were implemented, it would not in time build up the same kind of rigidity that characterizes licensure because of the dominance of the professions in its administration.

(3) Provide, in connection with a system of national health insurance, that a physician, dentist, optometrist, nurse, pharmacist or other professional for whom licensure is required in all states be eligible to furnish services in any other state under the program. The permissible scope of the licensee's practice would be governed by the state in which he is practicing. Other professional and nonprofessional personnel who are licensed in any state would be authorized to function in all states if they meet national standards. Use of ancillary personnel would be authorized in organized settings in accordance with national standards.

This proposal would use the payment mechanism of a national health insurance system to provide for national standards for personnel, both licensed and unlicensed. Its advantages are that it builds on existing state licensure and removes barriers to geographic mobility; also that it establishes national standards for unlicensed personnel and therefore enhances protection of the public. The disadvantage is political, for its implementation depends on the enactment of an effective system of national health insurance.

(4) Establish a system of institutional licensure under which individual licensure would be retained for independent practitioners to whom the public has direct access, but persons employed solely within the institution in a dependent capacity would be regulated by extended facility licensure.

This proposal takes account of the increasing provision of health care in organized frameworks and recognizes both the need for flexibility in the use of personnel and the need for protection of the public. As developed by Hershey[103], institutional licensure has two inseparable parts: (a) definition of jobs and qualifications for these jobs by health-care institutions and (b) review and regulation of job classifications, requring training and degree of supervision by a state agency accountable to the public. As Hershey has pointed out,

> . . . given the already existing responsibility under the basic principles of tort liability applicable to health institutions for the negligence of their servants or employees, it is not a dramatic change to place specific responsibility upon institutions as employers for qualification determination and appropriate utilization of personnel, in accordance with standards of a state licensing agency. In fact, most institutions already recognize that they have this kind of responsibility, because licensure and certification for unlicensed personnel per se do not constitute the sole or even, in many instances, the crucial determinants for employment of personnel in particular positions . . .
>
> The proposal is consistent with the trend toward placing increasing responsibility and accountability upon health care institutions by law. This trend is already becoming clear in regard to the performance of hospital medical staffs, the justification of costs and charges of health care providers, and the need for institutions to demonstrate their requirements for additional facilities and equipment before planning agencies. Health manpower utilization is but one element of comprehensive planning in the realm of providing health services, and a profusion of licensing boards for health personnel under the prevailing licensing system is inconsistent with such planning[104].

The advantages of this proposal are clear. On the one hand, it would permit innovative and flexible use of personnel in an institutional framework, where team provision of care builds in supervision and safeguards. On the other hand, it adds protection now lacking with respect to the many and proliferating categories of health personnel now subject to virtually no controls. The disadvantages are also clear. It is threatening to some professional groups, though perhaps their concern is exaggerated. It does not take account of the need for inter-institutional credentialing of personnel to permit qualifications approved for one institution to be transferred to another. Also, this proposal is a solution only for institutions[105].

(5) Repeal licensure for all health-care practitioners other than the physician when such practitioners are employed by health-care organizations registered to do business in the state and licensed to provide health care. All practitioners not employed by health-care organizations should be required to obtain certificates of practice from a health manpower board, composed of health professionals and a majority of public representatives.

As advanced by Carlson[106], this proposal, too, takes account of the increasing provision of health services in organized settings and of the growth of licensure for health-care organizations. Its advantages are that it would sanction efficient use of personnel and remove entry barriers to employment of persons without "gilt-edge credentials."[107] It would encourage the growth of large health-care organizations and the economical and effective use of personnel. This proposal is subject to objections similar to those leveled against institutional licensure. Under both proposals a strong regulatory

agency would be necessary to prevent for-profit and nonprofit organizations from cutting corners at the expense of the public but the licensing agency would have an ally in the spectre of malpractice suits and in the purpose for which the organizations are established – to provide good medical care.

CERTIFICATION AND REGISTRATION

Certification or registration is "the process by which a nongovernmental agency or association grants recognition to an individual who has met certain predetermined qualifications specified by that agency or association. Such qualifications may include: (a) graduation from an accredited or approved program; (b) acceptable performance on a qualifying examination or series of examinations; and/or (c) completion of a given amount of work e.. perience."[108] Registration consists in listing a name in a register of an agency if a person has completed certain training or engages in certain activities, whereas certification implies some recognition of the practitioner's competence, usually by a voluntary association or agency. Certification may apply either to basic or to specialty qualifications. Actually registration has come to imply verification that the person registered has the competencies the educational program was designed to provide[109]. For this reason the two terms are often used interchangeably. The picture is further complicated because certification and accreditation are closely related. As Grimm points out,

> . . . certification is often regarded as little more than a convenient shorthand method of identifying graduates of accredited programs.
>
> The close articulation between certification and accrediting standards has significant impact, not only upon individual students applying for certification, but also upon educational institutions and programs of study. Educational administrators find they must obtain accreditation to establish student eligibility for certification. Program directors find they must tailor their curricula to national professional accrediting standards in order to enable their students to pass national certifying tests. Some schools make graduation itself contingent upon passing registry exam nations[110].

Current Picture

Certification and registration are performed either by the profession or occupation itself through committees, boards, or registries or by independent agencies with some relation to the profession[111]. Although these forms of regulation of personnel are performed by voluntary, professional organizations, they affect the supply, retention and quality of health personnel. The main use of certification and registration is to provide assurance of

satisfactory qualifications and competencies. Employers use lists of certified or registered persons for a roster of potential employees. They rely on certification or registration as a verification of qualifications. For health workers, as Pennell and colleagues point out, certification encourages professional attitudes and goals[112]. Both governmental and voluntary agencies rely on certification as a guideline for accrediting educational programs and health facilities, for employing personnel and for reimbursing services.

Prerequisites for certification are controlled by the certifying agencies. They specify educational requirements and, in some instances, recognize experience as a criterion for certification. They determine who is eligible to take the agency's qualifying examination and develop the examination itself. Successful completion of a national, written examination is generally required for certification.

An additional requirement for certification, in many cases, is that the individual practitioner be a member of the professional association connected with certification. The reason given for this requirement is that the profession can vouch for the qualifications only of persons who abide by its standards. Requiring membership in a private organization, however, as a condition of certification is subject to question if lack of certification limits employment opportunities[113].

A few occupations require some continuing education as a condition of maintenance of registration or certification. Dietitians must meet a continuing education requirement in order to remain on the registry. Dental assistants and dental laboratory technicians must present evidence of continuing education for renewal of their certifications[114].

Problems and Issues

The professional associations in the health field have made a substantial contribution to influencing the quality of personnel by establishing national standards for recognition of qualifications. To the extent that registration and certification operate nationwide, these mechanisms avoid one of the disabilities of licensure.

In the process, however, problems have arisen that relate both to initial and to continuing qualifications. The basic requirement for certification is completion of an approved educational program but the multiplicity of educational programs in different settings makes surveillance difficult. Improvement of the accreditation process, discussed above, is crucial and in this effort professional associations will need to be concerned with the content and duration of educational programs and with what has been rightly termed "the inefficient organization of existing educational programs."[115]

Also related to basic education is the issue of allowing substitution of work experience for academic education in occupations recognized by

certification or registration. In many allied health occupations such recognition of equivalency qualifications would increase the manpower supply and open career ladders for the disadvantaged[116].

Another issue concerns the written examination required for graduates of approved programs. Very few certifying bodies use examinations developed by professional testing agencies[117]. In some cases, proficiency examinations might be a better measure of skills than written examinations testing recall of knowledge, but proficiency examinations are little used[118].

Finally, some question has been raised as to the ability of professional associations to control the continuing quality of performance of persons certified, whether or not they remain members of the association[119]. The development of required continuing education as a condition of continued certification is one response to this problem. Alternatively, proficiency tests or work experience could serve to validate continuing qualifications.

Proposed Strategies for Improvement

No overall investigation of the operation of registration and certification has been undertaken as has been done in the case of accreditation and licensure but thoughtful analyses of certification[120a, 120b, 120c, 120d] recommend that the process be made more reliable by several measures:

(1) making all certification standards national standards;
(2) increasing public accountability of the certifying bodies, now composed solely of members of the occupation;
(3) improving the examination process by using professional testing agencies with expertise in the development of objective and reliable tests and by introducing proficiency testing;
(4) involving professional associations in the strengthening of curricula;
(5) encouraging recognition of equivalent qualifications and the measurement of competence regardless of how the skills and knowledge were attained;
(6) developing and coordinating standards so as to increase articulation among the various levels within a professional field;
(7) limiting the time within which practitioners can be grandfathered into a new certification; and
(8) requiring evidence of updated qualifications. In addition, in the interest of improved credentialing, the operation might well be examined by a knowledgeable and responsible group.

SPECIALTY CERTIFICATION

Vast expansion in scientific knowledge and increasing organization of health services have contributed to the growth of specialization in many disciplines. In the field of medicine specialization is particularly prominent

and therefore the system of regulating qualifications of specialists is virtually as important as basic licensure. In other fields, such as dentistry, specialization is increasing also. Although limited, specialty certification also exists in the allied health professions, e.g., in clinical laboratory technology and x-ray technology.

Current Picture

In the United States specialty certification is generally a voluntary process and the function of professional associations. Since 1911, when the American Opthalmological Society established the first examining board to certify competence in a specialty, numerous certifying bodies have emerged – 20 primary medical specialty boards, 8 dental specialty boards, 12 osteopathic specialty boards, 1 podiatric specialty board, 7 veterinary specialty organizations and more than 25 other independent and allied health professional groups[121].

Strict postgraduate educational requirements are established by the specialty boards and an examination is required. Compliance with specialty board certification is effected not by legal sanctions but by ethical standards of the professional associations. If, however, a practitioner should hold himself out as board-certified when in fact he is not, he could be disciplined under the licensing law for unethical conduct. Moreover, it is substantially enforced also by requirements for hospital staff membership and for participation in governmental health programs, as discussed below.

In some few cases in the United States, specialization is regulated by statute – a common practice in other countries[122]. A minority of states provide in their dental practice acts for licensing specialists[123]. Licensure of nurse-midwives, discussed above, is licensure of a specialty in nursing. Thus a nurse-midwife may be both certified by the American College of Nurse-Midwives and also licensed, or she may be certified and authorized to practice under a mechanism other than licensure.

Speciality certification serves as an indicator to the general population that a practitioner has complied with the standards of education and experience required by the profession for practice in that specialty. It serves many other purposes also. It is an important basis for determining hospital staff privileges. Specialty certification of staff members is, furthermore, one criterion for licensure and accreditation of health facilities. Crippled children's programs and other governmental programs limit payments for certain services to board-certified or board-eligible specialists[124]. As Grimm points out, "... board certification is fast becoming a widely accepted and utilized measure of the *minimal* professional competence needed to practice medicine in certain specialty fields."[125]

Problems and Issues

Specialty certification, like licensure, is characterized by proliferation of categories regulated. Among the medical specialties, the most recently established is the American Academy of Family Practice[126]. Recognition of this field as a specialty was a long-overdue response to the fragmentation of medical practice into multiple specialties. In the effort to coordinate the work of the many specialty boards in medicine, the American Board of Medical Specialties was incorporated in April 1970 to replace the loose federation of separate boards that existed formerly[127]. With increased staff and funding this agency will be in a position to regulate recognition of new specialties and to coordinate administration of the specialty certification process.

One problem in this field concerns the possibility of confusing the consumer as to the qualifications of a practitioner by reason of the custom of announcing that a practice is limited to a certain specialty. If the practitioner is a board-certified or board-eligible specialist, no deception of the public is involved, of course. If, however, the practitioner limits his practice to a specialty and so announces but has not, in fact, met the requirements for specialty certification, is there any deception or misleading of the public? In medicine it is actually common and acceptable for physicians who are not board-certified to limit their practice and to announce the limitation. For dentistry the American Dental Association has stated in its "Principles of Ethics" that a dentist who represents himself to be a specialist is guilty of unethical conduct if he has not, in fact, met the requirements for specialty certification[128a, 128b].

Most importantly, the specialty boards have taken the leadership in developing mechanisms for surveillance of continuing qualifications of certified practitioners (see discussion below).

Proposed Strategies for Improvement

Some of the same strategies recommended for certification of allied health personnel apply to specialty certification as well – increasing public accountability, involving professional associations in strengthening curricula and requiring evidence of updated qualifications. In the future, the certifying boards may have to come to grips with the even more difficult questions of the proper numbers and distribution of specialists.

REGULATION OF WORK SETTINGS

Regulation of work settings is another form of social regulation of health manpower. This regulation may be either external or internal. External regulation of work settings effecting quality of health personnel may be either governmental or voluntary. Traditionally internal regulation of work

settings has been voluntary but increasingly the courts have established standards which affect internal regulation.

Current Picture

External regulation of work settings consists of state licensing laws for hospitals, extended-care facilities, clinics and laboratories; of national standards for facilities established by voluntary or governmental agencies; and of requirements of governmental and voluntary programs for training of personnel and provision of services.

State facility licensing laws, by requiring provision of certain services or services of a specified standard, affect the qualifications of hospital personnel. New, comprehensive hospital licensing laws in New York and Michigan contain provisions affecting the quality of care, which in turn influence the kinds of staff and their functions[129]. As standards are specified by specialized services provided by health facilities, these standards affect the personnel involved.

Hospitals and extended-care facilities may be subject not only to state licensing laws but also to national voluntary standards set by the Joint Commission on Accreditation of Hospitals and to registration requirements of the American Hospital Association[130]. In order to qualify as a provider under Medicare, hospitals must be certified in accordance with regulations for "Conditions of Participation for Hospitals," although accreditation by the Joint Commission satisfies this requirement[131]. Other external controls of work settings that affect qualifications of manpower are requirements of specialty boards for training of personnel, requirements of Federal training programs, requirements of educational institutions for clinical components of their programs, and peer review by professional standards review organizations (PSRO) under the aegis of a local medical society.

Internal regulation of work settings affecting qualifications and functions of personnel stems from the constitution and bylaws of hospitals, the policy of governing boards, the policies of trade unions, the decisions of organized medical staffs and the operations of hospital committees[132]. Denial or limitation of hospital staff privileges is a powerful sanction for inadequate performance. Since the decision in *Darling* v. *Charleston Community Memorial Hospital*[133] making the hospital responsible for the quality of care rendered in the hospital, internal regulation of the work setting has attained a new legal importance.

Problems and Issues

The effect of regulation of work settings on qualifications of personnel depends on the adequacy of the standards and on their implementation. For example, enactment of strengthened hospital licensing laws will have

repercussions on the qualifications of personnel. Adoption by the Joint Commission on Accreditation of Hospitals of standards regulating hospital-based home care, neighborhood health centers, hospital outpatient departments, free-standing surgical centers for ambulatory patients, respiratory therapy services and hospital dental services[134] – aspects of patient care for which no standards previously existed – will inevitably entail consequences for the qualifications of personnel who work in these settings.

Proposed Strategies for Improvement

Regulation of work settings is a powerful device for regulating qualifications of personnel. The proposal for institutional licensure, discussed above, outlines one approach to regulation of personnel through extension of facility licensure. Irrespective of whether this precise proposal is adopted, it is highly likely that changes in organization and financing of health services will impel some integration of the currently separate regulatory systems for personnel and facilities[135].

REQUIREMENTS OF PAYMENT PROGRAMS

An increasingly significant form of regulation of the qualifications of health personnel is to be found in the requirements of payment programs, both governmental and voluntary. On the theory that he who pays the piper calls the tune, payment programs may provide reimbursement of services only if they are provided by specified kinds of personnel with specified qualifications[136].

Current Picture

The Medicare program illustrates the effect of a payment program on qualifications of personnel[137]. Under Medicare, Part A covering inhospital services, general hospital costs are reimbursed and therefore salaries of all hospital personnel are included in the hospital's per diem rate. Part B of Medicare, covering outpatient services rendered by a hospital, also reimburses services provided by all hospital personnel on condition that these services are incident to a physician's service[138]. The physician is not required to be directly involved in the provision of these services so long as they are provided on the premises of the hospital[139]. Thus Medicare encourages use of allied health personnel.

Out-of-hospital services rendered by independent practitioners or auxiliary personnel can be reimbursed under Part B of Medicare only when "incident to a physician's professional services" and provided under the direct personal supervision of the physician. The services of physical therapists and clinical psychologists are reimbursed if the services are provided under conditions designed to protect the quality of care[140]. Changes sought in the

requirements for nursing personnel in extended-care facilities, for independent laboratory personnel and for corrective therapists were denied on the ground that these changes represented a lowering of the quality of care provided the aged[141]. Thus Medicare allows reimbursement of allied health personnel under conditions designed to assure the quality of care.

Not only payment programs – of which there are many – but Federal programs for training health manpower, mentioned above, also influence qualifications of personnel. The Allied Health Professions Personnel Training Act has exerted an important influence on the numbers and kinds of allied health personnel and on their qualifications[142]. More recently, the Nurse Training Act of 1971 provided for grants to

> develop training programs, and train, for new roles, types, or levels of nursing personnel, including programs for the training of pediatric nurse practitioners or other types of nurse practitioners. . .[143]

Such Federal spending influences the functions of health personnel and constitutes a form of social regulation.

Problems and Issues

Through payment programs controls are exercised over the institutions in which personnel work and over the personnel themselves[144]. For each of many payment programs appropriate standards of care are determined, reimbursable services are specified and personnel qualifications may be set. The issue is how to encourage the most rational use of health manpower and also protect the quality of care in each program. For the aggregate of multiple, segmented programs the issue is how to reconcile variable, inconsistent and inequitable requirements for personnel.

Proposed Strategies for Improvement

An inventory of Federal training programs supporting health manpower training lists 144 separately identified programs through which training was supported in 1970[145]. Although each program represents an incremental addition to training of personnel, some rationalization of these disparate programs should be undertaken to maximize their output. Perhaps the formation of Area Health Education Centers to coordinate training of health personnel will facilitate this task.

Proposals for changes in the organization and financing of health services may contain provisions that regulate personnel. Health maintenance organizations, with their capacity to use a wide range of allied health personnel efficiently, will themselves exert controls over use of health manpower, irrespective of external regulation of personnel or facilities. National health insurance offers a significant potential for establishing national standards for health personnel and for encouraging effective use of all members of the health team by means of incentives.

CONTINUING QUALIFICATIONS

In the five years since the National Advisory Commission on Health Manpower recommended some form of periodic relicensure as a bulwark against professional obsolescence[146], the view that some kind of updating of qualifications should be encouraged or even required has been widely adopted. The many activities of professional associations, licensing boards and educational institutions in the field of continuing education reflect "the growing sentiment that licensure and certification should not be pursued as a one-time endeavor but rather as an on-going process that requires periodic updating."[147]

Current Picture

Surveillance of continuing qualifications is currently provided in two ways:

(1) by professional associations that require (or recommend on a voluntary basis) a specified kind or amount of continuing education or alternative evidence of continuing qualifications as a condition of continued certification or association membership; and

(2) by licensing boards that require continuing education or an alternative as a condition of license renewal.

Several professional associations require their members to take a certain number of hours of instruction annually for continued certification: The American Academy of Family Practice, the American Dental Assistants Association, the National Board for Certification in Dental Laboratory Technology, the American Dietetic Association and the American Registry of Clinical Radiology Technicians[148]. Specialty boards in medicine conduct self-assessment consisting of a comprehensive examination which is self-administered. The American College of Physicians indicates that 94 percent of its members participate in its self-assessment program[149].

In five states – Arizona, New Mexico, New Jersey, Oregon and Pennsylvania – the state medical association requires a certain number of hours of continuing education as a condition of membership[150]. In some other states, voluntary continuing education is encouraged by the state medical associations. The American Medical Association has established a Physician's Recognition Award for physicians who complete 150 hours of continuing education in a three-year period.

Statutory provisions requiring evidence of continuing qualifications as a condition of license renewal have been enacted in some states for the following categories of personnel: optometrists, osteopathic physicians, dentists, dental hygienists and nurses. In 23 states, optometrists are required either by statues or by regulation to complete a specified number of hours of continuing education[151]. In 12 states osteopaths are required to furnish evidence of completion of a one- or two-day refresher course as a condition

of renewal of their licenses[152]. Five dental licensing boards require continuing education for dentists (Kansas, Kentucky, Minnesota, North Dakota, Pennsylvania and South Dakota), and three of these boards also require continuing education for dental hygienists (Kansas, Minnesota and South Dakota)[153].

In California as of 1975 both registered nurses and licensed vocational nurses will be required to inform themselves of developments in their fields either by pursuing an approved course of continuing education or by other means deemed equivalent in the field. The license holder may elect to take an examination given by the board on developments in the field since the issuance of the license or its latest renewal[154]. The California Legislature has also established a Council on Continuing Education for Health Occupations with primary responsibility for implementing all statutory requirements for continuing education[155].

In addition continuing qualifications are maintained by the requirements of hospital staffs, by hospital review boards and by professional standards review organizations. All these forms of monitoring continuing qualifications rely on the organizational setting in which services are provided.

Problems and Issues

With increasing recognition of the need for updating qualifications in every field, the issues relate to how continuing qualifications should be maintained. Should some form of renewal of qualifications be required or should such activities be voluntary? If voluntary, what incentives should be offered? Is re-examination or continuing education a preferable mechanism? If re-examination is the mechanism of choice, should the practitioner be examined on recent developments in his specialty or in the entire field? How can meaningful continuing education be provided? Who should sponsor it and how should it be organized? Which new technique (e.g., programmed learning, telelectures, closed-circuit television) can be used effectively? What means should be used to accredit programs of continuing education?

Proposed Strategies for Improvement

The strategies for maintenance of continuing qualifications divide basically into those that follow the voluntary route and those that would make evidence of continuing qualifications compulsory. The marked growth of continuing education programs under sponsorship of professional associations reflects the vigor of the voluntary approach. Yet some professions, mainly optometry, osteopathy and more recently dentistry, have accommodated well to legally required continuing education. Perhaps, in time, other professions will see the virtue of requiring all professionals – not merely those who are conscientious – to undertake updating of their qualifications.

A LOOK AHEAD

Regulation of health manpower in the future is being shaped by current changes in licensing laws and by recommended changes in other mechanisms of social control. These efforts are designed to correct rigidities in the system that bar recognition of equivalent qualifications, that discourage reasonable delegation of functions, that prevent flexible use of personnel and that impede lateral and vertical mobility of health manpower. At the same time efforts are being made to correct excessive permissiveness, which allows proliferation of new kinds of personnel with variable preparation and minimal controls over their functions. Thus efforts are bent in two directions:

(1) towards removing legalistic constraints not justified by modern education and technology on members of the health team and

(2) towards increasing public protection and public accountability in all forms of social regulation of personnel.

What can educational institutions, professional associations, governmental and voluntary health agencies, individual and institutional providers of health services, and consumers of health care do, beyond what they are already doing, to advance these efforts?

Excellent suggestions for improvement of each of the mechanisms for social control of health manpower are contained in the numerous recent reports, conferences and policy formulations on problems of health manpower. Of the many recommended actions, five seem to me to command special consideration as implementing the double thrust of removing legalistic constraints on optimal functioning of health personnel and increasing public protection and public accountability. These measures relate to rationalizing educational programs, to integrating regulatory mechanisms, to raising national standards, to increasing the potential of health-care institutions to regulate the functions of personnel and to meeting the need for a sound system of continuing education.

(1) *Using accreditation to rationalize the organization of educational programs.* The fundamental guarantee of effective and safe performance by health personnel is, of course, the quality of their educational preparation. Accreditation is a powerful tool for bringing all educational programs up to the minimal standard, for eliminating undesirable variations in resources and curriculum and for organizing educational programs in a rational and integrated way. Improvement of the mechanism of accreditation, as has been recommended, will enhance its power to accomplish these objectives.

(2) *Empowering the state health agency to coordinate and integrate mechanisms for regulation of health personnel.* A pluralistic system of regulating health manpower inevitably entails variability, inconsistencies and agencies working at cross-purposes. In the face of multiple regulatory mechanisms and agencies, some device must be created for welding together the disparate parts of the system. The logical agency is the state health agency

responsible for assuring the overall quality of health services available to the public. A unit should be created in every state health agency, adequately staffed and funded, and charged with responsibility for coordinating and integrating the various mechanisms regulating health manpower.

(3) *Moving towards a national system of credentialing health manpower.* The development of national examinations, of national criteria for certification of health personnel and of expanded interstate recognition of medical and other licenses are all moves in the direction of national standards for health personnel. As a matter of equity for the country as a whole and in order to remove barriers to geographic mobility of health personnel, the adoption of such measures should be accelerated. Granted that the states may impose restrictions on licensure of health personnel that are reasonably related to protection of the public health, differing state standards may have become an anachronism in contemporary American society. New ways of organizing and financing health services, now under discussion, may speed the development of a national system of credentialing health manpower.

(4) *Placing responsibility for the performance of health-care institutions.* The legal responsibility of health-care institutions for the quality of care they provide to the public foretells expanded institutional responsibility for performance of personnel. As Carlson has pointed out:

> If organizations bear the burden of control over the quality of care, the demand to relieve such organizations of the constraint of licensure laws which inhibit utilization practices better calculated to produce high quality health care outcomes can be expected[156].

The concept of institutional responsibility for the performance of personnel has two aspects, as mentioned: One involves the definition of tasks and qualifications for these tasks by the institution, and the other involves approval and surveillance of the institution's manpower practices by a governmental agency. Such expanded institutional responsibility for the performance of personnel, in accord with the legal responsibility of institutions, may be a realistic way to correct the rigidities of the present system and to assure controls over the many kinds of personnel that are currently subject to little or no regulation. Even with the adoption of some form of institutional licensure, individual licensure of the long-established professions will be necessary and should continue. But within institutional frameworks some way should be devised of supplementing the individual responsibility of the licensed health professions for their own performance with institutional responsibility for the performance of personnel. In this manner it may be possible to assure the necessary flexibility in use of personnel and at the same time to bring within the purview of public regulation the large and changing segment of health personnel now solely within the control of the individual institution.

(5) *Developing a sound system of continuing education.* Among the various regulatory mechanisms, a high priority should be assigned to maintenance of continuing qualifications. Current experimentation with different ways of encouraging or requiring updated qualifications should help in determining whether preference should be given to legally required continuing education or to voluntary efforts. On the one hand, legally required continuing education may entail the danger of introducing a *pro forma* proviso, whereby individual burdens in expenditure of time, energy and money are imposed on educational programs and practitioners without improving performance. On the other hand, the voluntary approach has the serious deficiency of leaving educational obsolescence unchecked among those practitioners who may be most in need of updating their qualifications. Regardless of the regulatory mechanism ultimately selected, the challenge to educational programs, health-care institutions, and the health professions is to develop sound, meaningful and imaginative means of assuring updated qualifications in the health professions and occupations. Continuing Education must become as integral a part of the qualifications of health personnel as basic education.

* *

As steps are taken to implement these and other measures to improve regulation of health manpower, the aim should be to create a system of regulation and protection of the public sufficiently flexible to respond, without undue lag, to new needs in health service, to advances in knowledge and technology, and to expanded potential for education and training of health personnel.

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Groping Toward a National Policy Involving Regional Efforts for Improved Health-Service Delivery

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What is called America's "health crisis" is in part a function of rising expectations both of the people and of their governments. The "crisis" that exists is a function also of the programs that have been developed in response to calls for a reorganized system for health care. The crisis may have its roots in the absence both of rational organization and the appropriate deployment and use of health-care resources. As one example, the proliferation of health-payment programs, private and public, has been shown to increase the demand for health care, thus exacerbating the crisis. Further, the increase in demand has been accompanied by a demonstrated increase in costs both to consumers and to governments.

Those steps taken to increase the number and kinds of manpower and facilities, unless accompanied by personal, professional, organizational and governmental reforms, will likely increase distribution and delivery problems, and, in all probability, will continue to show increased costs over the short range.

The United States government does not yet have either a unified, coherent national health policy or the mechanism to implement it. The government is, however, groping toward both aims. It has enunciated a set of broad national goals and a set of principles. Embodied in the principles is the peculiarly American approach – pluralistic, not monolithic, and voluntary and cooperative, not compulsory. Inherent too is the recognition that limitations exist, constitutional and traditional, on the abilities of the Federal government to solve all problems or to supply all answers.

In recent times we have seen how the Johnson Administration wove pluralistic and voluntary principles into a mix of programs that were intended to operate through new Federal mechanisms. The mechanisms required a cooperative approach among local, state and Federal governments, and between health providers and the public. Specific examples (that will be discussed later) are the Regional Medical Programs, aimed at action by the providers, and the Comprehensive Health Planning Program, aimed at joint planning by representatives of consumers, providers and planners.

The first Nixon Administration continued both these programs and laid new stress and attention upon their reciprocal relationships. Additionally, the Administration put forth a "comprehensive health strategy" in 1971. Of the proposals in that strategy, three were enacted by the Congress: the Comprehensive Health Manpower Training Act, the Nurses Training Act, and the National Cancer Act; others await disposition. In 1972 the President put forth a Health Message to Congress calling for enactment of other parts of his "interlinked strategy," particularly those measures promoting comprehensive preventive and treatment programs (Health Maintenance Organizations) and citizen self-help programs collectively described as consumer health education programs.

Clearly, if it is to work, the strategy is and must be interlinked not only at the Federal level but also at the regional level. Clear, too, is that the Administration's approach continues the concept that these programs, existing and proposed, will remain voluntary and will require a cooperative regionalized approach; many of them involve and make use of continuing education as an integral instrument and an essential ingredient.

Relating the evolving principles and building from the base of identified problems and needs and taking advantage of existing and proposed Federal, state and local programs, the people and the State government in Wisconsin are approaching the solution of health problems in a regional way that will be described in some detail for the purpose of illustration.

The purpose of this monograph is to discuss selected elements in the evolving national health strategy and to relate these to regional approaches to improving health service and continuing education as an integral component of that strategy. To do this, it is necessary (1) to present an extensive national overview, (2) to describe some ongoing attempts at regionalized health-care programs, specifically regional medical programs and comprehensive health planning activities, (3) to consider the emerging concepts of health maintenance and the area health education and service center, and (4) finally, to deal, illustratively with the way Wisconsin is approaching the solution to its health problems from a regional point of view.

NATIONAL OVERVIEW

Of course, no single person – President or cabinet officer, governor or private citizen – in our pluralistic society can order a system into being. Former HEW Secretary John Gardner said[9] ". . . one can see at all levels the *groping* attempts to create a new system . . ." "The new system has not yet taken shape, and that part is of critical importance for our future. It means that we still have major choices." (Emphasis added.)

In 1966, then Surgeon General William E. Stewart said, ". . . our mandate implies broad national goals – universal access to high-quality care and creation of an environment that promotes healthful and productive living.

Beyond that point, however, we have *no unified coherent national policy* which relates resources and priorities to these goals. Moreover, having no way of framing mutually agreed-upon priorities, we have no effective way of measuring results against input." (Emphasis added.)

The words of former Surgeon General Jesse Steinfeld continue to reflect a pluralistic approach. Dr. Steinfeld, speaking at the 24th World Health Assembly in 1970, said:

> [The United States] has determined that five basic principles must serve as the foundation for the United States' first national health policy to improve our health care system in a coordinated, comprehensive program directed at problems in health education, health research and delivery of health services.
>
> First and foremost, equal access to our health care system is essential. Racial, economic, social, and geographic barriers must be eliminated or minimized. . .
>
> Second, supply and demand in health resources must be reasonably balanced. An increase in demand that cannot be met by existing or foreseeable resources compounds the problem – a principle that was ignored and has proved costly in our previous experience with Medicaid and Medicare.
>
> Third, the health care system, including health education and health research as well as health services, must be organized efficiently. Placing the burden of greater new demands generated by increased funding on the same old inefficient system is fatal. How much to spend is only part of the question. How to spend it efficiently for a maximum return on the investment is the critical issue.
>
> Fourth, instead of discarding all of the present system, the great strengths of our existing system will be built upon. Nothing could lead to greater chaos than to sacrifice useful parts of the system under the misguided concept that we must totally do away with our present system and start anew in order to improve it.
>
> And, fifth, our programs will be based on health – not health care alone. This means that individual citizens will be encouraged to act responsibly in their daily lives through programs of health education, health maintenance, and disease prevention.

John Gardner's word "groping" is recalled. No doubt in response to public pressures, the Congress shares in the results of a multifaceted approach. Consider the language of the Declaration of National Purpose as preamble to the Comprehensive Health Planning and Public Health Services Amendments of 1966 passed to promote and assure "the highest level of health attainable for every person." This phrase may well represent hoped-for purpose and

policy attainment;* the language describes steps toward that goal – "that attainment . . . depends on an effective partnership, involving close intergovernmental collaboration, official and voluntary efforts, and participation of individuals and organizations"; further, the strategy at the Federal level is described "That Federal financial assistance must be directed to support the marshalling of all health resources – national, state and local – to assure comprehensive health services of high quality for every person"; however, the phrase is inserted, "... *but without interference with existing patterns of private professional practice of medicine, dentistry, and related healing arts.*" (Emphasis added.)**

COMPREHENSIVE HEALTH PLANNING

It seemed apparent that the Congress had recognized the need for a mechanism which would promote the most efficient use of health resources and the ready availability of health services to all who need them. The enactment of Public Law 89-749 established comprehensive health planning with *all* the elements which would have an influence on the health of the individual, the family and the community. The elements, in addition to health services, facilities and manpower, were to include the environment, socio-economic conditions and considerations, housing, transportation and education.

Comprehensive health planning was designed to link together as operating partners the Federal government, state governments, and local areas. Through the law, the Federal government was empowered to provide money and technical assistance to states and communities to assist them in organizing and conducting comprehensive health planning. The states were requested to establish Statewide Comprehensive Health Planning Agencies ("A Agencies")

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*That much had not changed in four years is shown when in 1970,[14] Senator Abraham A. Ribicoff, writing in *Saturday Review*, asked, "Why should [health] care be on the verge of collapse for so many Americans?" He answered his question this way: "One compelling reason was contained in a letter [he received] last fall from the Department of Health, Education and Welfare. I had asked how each of the twenty-four departments and agencies that spend the government's $20.6 billion health budget contributed to the formulation and implementation of the national health policy. With refreshing candor, HEW answered: 'Up to and including the present, there has never been a formulation of national health policy as such. In addition, no specific mechanism has been set up to carry out this function.'

"That in itself is an intolerable situation. If there is no policy, there can be no goals. If there are no goals, there can be no strategies. This is what we have, and the result is that medical care, instead of being a public responsibility, is a private business. It is operated more for the convenience of its practitioners than according to the needs of the sick."

**Professor William R. Rosengren, the University of Rhode Island, calls this a "hedge phrase," and comments:[16] "... it is now widely acknowledged that the defects in health care in this country are *primarily* organizational in nature," and "... it is obviously *imperative* that there be some interference – perhaps drastic interference – with the existing patterns of private professional practice ..."

3 OF 3

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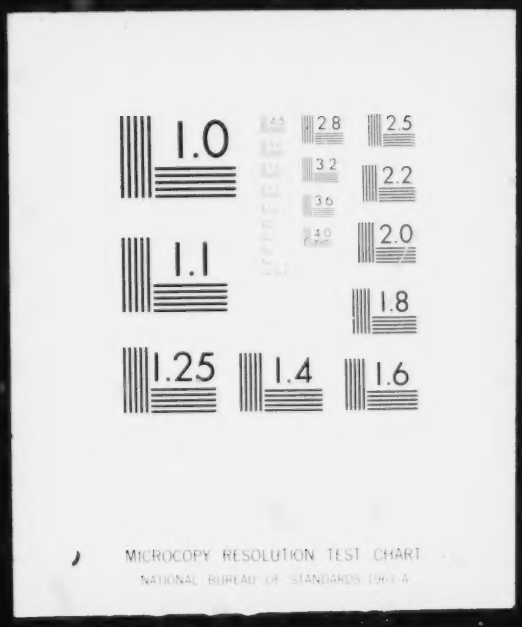

which were to deal with the health of the people of the state in broad terms. Local areas were to organize Comprehensive Health Planning Agencies ("B Agencies") which would concern themselves with the health needs of the people in the area and specific facilities, services and manpower to meet these needs.

The Partnership for Health aspect demanded that both state and areawide Comprehensive Health Planning Agencies were to depend heavily upon advisory councils for direction. These councils were made up of representatives of consumers and providers of health services, with the requirement that consumer representatives be in the majority.

Through this mechanism, provision was made for broad participation in the comprehensive health planning process, essentially involving these points: identifying health needs; inventorying health resources; considering alternative courses for action; developing priorities and recommendations for action; promoting implementation of recommendations; and evaluating results.*

The great majority of areawide health planning agencies were established within the last five years. When one looks at the State of Wisconsin, for example, it was not until May 1972 that its areawide comprehensive health planning agencies were all organized, approved and funded throughout the State. At that time, Wisconsin became the first state in HEW Region V (Ohio, Michigan, Indiana, Illinois, Minnesota, and Wisconsin) and only the fifth in the nation to be so developed. If planning at regional levels is a part of the strategy, its success remains to be demonstrated. And, if the agencies are effectively to function, it may be that their role needs modification from advisory to a more clearly mandated one involving control and enforcement.

REGIONAL MEDICAL PROGRAMS

The other important Johnson Administration Federal-regional program having health delivery and continuing education aspects is the Regional Medical Program. When the 91st Congress extended the Regional Medical Program for an additional three years, *Medical Tribune* commented editorially both on RMP and CHP[7]:

> . . . It is obvious . . . that Congress intends to emphasize improvement of the care of patients with chronic diseases. . . . At the same time, the Department of Health, Education, and Welfare looks upon Regional Medical Programs as innovators of change in

*Of course, existing methods in the process detailed here need improvement. Identifying, inventorying, considering, developing, recommending, promoting and evaluating are all judgmental terms. And, when judgments are involved, proponents of varying views may disagree. Nonetheless, evidence is beginning to accumulate that the planning process may be made to work. The Wisconsin Task Force recommendation on this point will be discussed later.

the health-care system and as rapid disseminators of scientific knowledge to providers of health care.

The Regional Medical Programs have emphasized continuing education for the health professions. Training in new technologies, such as intensive coronary care nursing, has been conducted in most of the programs. The use of telephone, radio and automated audiovisual equipment has expanded rapidly. Interprofessional collaboration to improve educational programming and the strengthening of ties between medical centers and the communities have also been successfully introduced.

All Regional Medical Programs are sponsored by one or more medical schools. Medical societies and voluntary health agencies have joined with the universities to plan and conduct projects. Pilot projects and demonstrations which are designed to experiment with new ways of providing health care – particularly for those who find access to the health-care system difficult – have been attempted widely . . . it is apparent that the programs have been unusually effective as catalysts in bringing about collaboration and linkages between and among medical schools, hospitals, and health professionals, and voluntary health agencies – and in a way heretofore not seen in our nation. The groundwork has been laid for a more efficient and rational way to deal with such complex problems as organ transplantation, high-voltage radiation therapy, stroke rehabilitation, and the management of coronary artery disease.

By its extension of the law, the Congress also emphasized the interrelationship of Regional Medical Programs with Comprehensive Health Planning. In many ways the individual Regional Medical Programs and the Comprehensive Health Planning Areawide Agencies have a reciprocal relationship. The former are concerned principally with action programs, whereas Comprehensive Health Planning is concerned principally with the planning and development of operational resources and the analysis of consumer needs and demands, including the social judgments regarding them. A Regional Medical Program, on the other hand, can readily become an agent for change in the health-care system because it has access to and an influence upon the professional and institutional components of the delivery system. Regional Medical Programs have a provider orientation, whereas Comprehensive Health Planning Agencies, according to law, are under consumer control.

Comprehensive Health Planning and Regional Medical Programs were both enacted by the 89th Congress. Each was sponsored by a different coalition of health interests. Comprehensive Health Planning in many ways became the legal implementation of a plan sponsored for many years by the American Public Health Association and the schools of public health. Regional Medical Programs, on the other hand, arose out of the Report of the President's Commission on Heart, Cancer, and Stroke with the strong backing of voluntary health agencies, the American Medical Association, and the medical schools. It appeared at first that the two agencies might get in each other's way, and in some states difficulties actually occurred. As both programs mature,

however, their complementary and supplementary nature, becomes more and more evident, and it is likely that many functional interrelationships will develop between them. It is questionable, however, whether the programs should or will merge, or one become subservient to the other. Comprehensive Health Planning Agencies have strong ties to state and local governments and, as such, may be subject to political influences, whereas Regional Medical Programs are strongly tied to the universities and the health professionals and function either as university agents or nonprofit corporations controlled by a coalition of the health professions and the universities. . . .

Congress, representing the public, has given great autonomy and flexibility through Regional Medical Programs Service to those who are responsible for delivering health care. If they succeed in effectively using these new instruments for inter-professional and inter-institutional planning and collaboration, there is less danger of a total reorganization of the health-care system under direct Government control.

In considering regional efforts, it is of interest to recall the analysis of William Rosengren, who has commented about "approaches to directed intervention" mainly through Washington, D.C. He wrote[16]:

> . . . In spite of stated goals each health agency, in Washington as well as at the state and local level, stand in a situation of competiton with one another, the result of which is frequently a dissipation of energies and resources along a broadly ranging front without much forward movement. Paradoxically, perhaps, two or more health programs designed to address the present "crisis" in medicine are not infrequently in direct conflict with one another. This is the ecology of games leading to half-bridges.
>
> Take medical regionalization and the Hill-Burton programs as the prototype of this situation. The first competes for funds to create highly sophisticated and technologically complete medical complexes, with teaching, research and treatment components; the second competes for the same funds for the construction of small-scale general hospitals. The result is inadequate funding and operationalizing of *both*.

Edward A. Lentz of The Ohio State University, College of Medicine has discussed regional developments at length. His paper[11] stresses the great potential that remains ". . . with those responsible for policy and budgetary decisions and includes government, providers and consumer groups":

> It is evident that solution to many of the nation's health problems requires a cooperative approach between local, state and Federal governments, consumers and providers. In many instances federal programs require state actions in the form of legislation and financing. The convergence of these and other forces at the local level and upon the individual units requires the development of appropriate strategies to assure acceptance of intent, and to reduce risk, encourage involvement and investment. Such cooperative arrangements are being made possible through

the increased awareness of the value and necessity for comprehensive areawide health planning and by the collaborative efforts by those comprising the health system. The establishment of comprehensive areawide health planning agencies under public or private auspices is one direct means of helping us to assure local involvement in the planning process.

A COMPREHENSIVE HEALTH STRATEGY

We turn now to one more national assessment and overview in some detail. The Nixon Administration charted a strategy set between a monolithic system and a multifaceted systems approach in a "White Paper," *Towards a Comprehensive Health Policy for the 1970's*[15]. Then HEW Secretary Elliot L. Richardson, in the foreword, wrote:

> . . . the strategy seeks to modify the entire *system* of health care . . . it became abundantly clear, in the process of defining precisely the nature of the "health care crisis," that the most basic and widespread problems were in fact systemic, and that further categorical and piecemeal efforts would very likely exacerbate rather than ameliorate the problems.

The *White Paper* set the problems in perspective in this fashion:

> Before the Administration would consider any specific solution to the "health care crisis," it required first a clear and precise statement of the problems – what was and what was not contributing to the crisis. The task at the outset, then, was to examine the health status of the Nation, the trends in the development of health care resources, the financing of care, and the Federal actions in each of these areas.
>
> The indices with which we measure health, have much to be desired, especially in terms of the definition of "health" the World Health Organization uses: a positive sense of physical and mental well-being. Our indices are of illness rather than of health, and statistics of death are statistics on existence, not only of health. Moreover, we lack indices of consumer satisfaction with health services received, and our measures of quality are also essentially negative and anecdotal – such as excessive surgery or over-reliance upon drugs.

The Administration's *White Paper* summarized the gross measures of health status as indicating that health has been improving, not worsening, and the cause of the crisis in health care is not to be found in the general status of health. It hastened to add, however, gross figures "mask very large disparities in health status among sub-populations in the Nation. On nearly every index that we have, the poor and the racial minorities fare worse than their opposites. Their lives are shorter; they have more chronic and debilitating illnesses; their infant and maternal death rates are higher; their protection, through immunization, against infectious diseases, is far lower. They also have far less access of health services – and this is particularly true of poor and

non-white children, millions of whom receive little or no dental or pediatric care."

"Part of the health care crisis," the *White Paper* suggests, "is our awareness of these differences among our people – the denial to some of a life span as long and as relatively free of disabilities and illnesses as that which others enjoy – accompanied by a sense of unjustice that denial entails, and by expectations that denial and its effects can and should be obviated."

If this is an adequate description of part of the health-care problem, in which race and income and related socio-economic variables are playing dominant roles, then, the *White Paper* continued, we must begin to consider several alternatives to *medical* care to close the gap in *health* status. For at least some components of this problem, reforms in welfare, in education and in civil liberties should pay dividends in health status.

Insofar as health-care resources are concerned, the Administration's *White Paper* reported that health manpower and hospital facilities – the major health-care resources – have been growing faster than population, especially in recent years; however, it did not appear that the growth in health-manpower supply relative to population *in general* was contributing to the alleviation of the health-care crisis. Despite this, however, the *White Paper* indicated that, as was the case with measures of health status, the aggregate measures of health-care resources seemed to hide more than they reveal.

"Another part of the health care crisis, then," the *White Paper* reported, "results from the large disparities in the geographic location of resources." The Administration's findings were that too many people simply lacked convenient access to physician services; too many communities were unable to attract physicians to practice there. And without physicians, or with relatively few physicians, it appeared hospital facilities were either unused or underused. Another assessment of resources related to the declining ratio of primary-care physicians relative to the general population and the hospital-based-treatment requirements utilized by specialists. This suggests, therefore, that two types of distributional problems contribute to America's health-care problems. One is geographic, the other is the type of medical practice.

The improper management of our health-care resources was cited as another important contributor to the crisis in health care. Poor utilization of these resources tended to restrict the quantity of services available, the geographic reach of the services, and the ability to control costs. The *White Paper* admits that the extent to which health-care resources are poorly utilized throughout the Nation has not been measured, nor have the costs of mismanagement been calculated. As an example, just a 10 percent improvement in efficiency would yield a saving of more than $5 billion.

Regarding organization of services, the *White Paper* said that the mismanagement of resources is in part a function of the manner in which the resources are organized for the delivery of services, and therefore the

organization of services can be pinpointed as a causal factor in the health-care crisis.

The system by which services are provided in this country has been described pejoratively as a "nonsystem," as a "cottage industry of small entrepreneurs (physicians)," and as "push-cart vending in the age of supermarkets." While increasing the size of units in the industry is not the solution to all of its problems, the scale and interrelationships among the components demand study. Until a certain scale is reached, ". . . it is difficult if not impossible to use scarce skills on tasks for which they are best suited, or to make trade-offs between, say, hospital and home health services," said the Administration.

The solutions to these problems proposed in 1971 by the Administration form an "interlocking strategy." The entire "health-care crisis" is addressed, from prevention of illness and injury to the financing of health services, from incentives to encourage a better distribution of health services to assistance and incentives for professional schools. The proposals are labeled a "comprehensive health strategy."

As they relate to regional services and continuing education efforts, only certain aspects of the *White Paper* will be considered: prevention, innovation and reform, and health manpower.

Prevention

Preventing premature deaths, illness and injury are suggested as major parts for the Administration's strategy. Not only can prevention alleviate human suffering and perhaps contribute to "a positive sense of physical and mental well-being" but expenditures on prevention should be able to be traded off economically against expenditures on treatment and rehabilitation. The Administration's 1971 interlocking strategy for prevention included efforts in these problem areas: welfare reforms, nutrition, family planning, occupational health and safety, automobile accidents and alcoholism, pollution control, health research, prevention of communicable diseases, lead-paint poisoning, product safety and Indian health.

Because this will be discussed in more detail, Administration strategy for Personal Responsibility for Health is described fully:

> Impressive gains in the prevention of illness and death could be made if our citizens were better informed about the actions they might take – and were encouraged to take – to improve their health. Over-indulgence in foods and alcoholic beverages, cigarette smoking, excessive use of drugs and nostrums, inadequate exercise, and insufficient attention o indicative physiological changes, all contribute to unnecessary and avoidable illnesses. The Administration has stimulated the formation of a National Health Education Foundation, a private, non-profit organization that will receive no Federal funds. It will be sponsored by business, labor, the health professions, the insurance industry, and health

and welfare organizations. The Foundation will undertake a comprehensive health education program to promote preventive actions that citizens can undertake on their own behalf.

This listing, then, constitutes the alternatives the Nixon Administration selected to prevent illnesses and injuries. It rejected a number of alternatives on the basis of the "five basic principles" quoted from Dr. Jesse Steinfeld at the beginning of this overview. "As time and circumstances change, and as we increase our knowledge about how to undertake other cost-effective preventive measure, the list will undoubtedly be lengthened," concluded this section of the *White Paper*.

Health Maintenance Organizations

Because of its label as a "key part" of Administration's health strategy, the Health Maintenance Organizations proposal for innovation and reform in the delivery system is considered in detail. The *White Paper* reported:

> HMOs simultaneously attack many of the problems comprising the health care crisis. They emphasize prevention and early care; they provide incentives for holding down costs and for increasing the productivity of resources; they offer opportunities for improving the quality of care; they provide a means for improving the geographic distribution of care; and, by mobilizing private capital and managerial talent, they reduce the need for Federal funds and direct controls. They also contain shortcomings, which will be described later on, that must be guarded against. . . .
>
> The best, and perhaps the only test of any health care system is the health of its patients. Less hospitalization, less surgery, and lower costs do not in themselves equal desirable care. Costs and services can be low for undesirable reasons.
>
> Results for three indicators – premature birth rates, infant mortality, and elderly mortality – suggest that HMOs can improve chances for life itself. Such results confirm the 1967 findings of the National Advisory Commission on Health Manpower that HMOs deliver high quality care. . . .
>
> The shortcomings of HMOs, mentioned earlier, appear to be these: One careful study found that knowledge about HMOs and the predisposition to choose them over alternative systems are greater among older persons who are heads of large families in the mid-range of income groups. In other words, they are people whom one would expect to make the most sophisticated choices. This suggests that effective means of informing consumers should precede the expansion of HMOs among all population groups.
>
> More significantly, other studies have found that some individuals perceive HMOs as impersonal, inconvenient, and require long waiting to get services. They also feel that there is a "clinical" or even a "charity" atmosphere in the health care facilities. Most of these perceptions apply to alternative forms of care as well – but not all of them, and not so intensely. In short, there may be attitudinal barriers to the rapid expansion of HMOs, which will require a conscious effort to reduce or eliminate.

The Administration will use various existing authorities to stimulate the development of HMOs. The authorities include: Partnership for Health, Regional Medical Programs, Health Services Research and Development, Hill-Burton, and possibly others. But, new legislative and administrative initiatives will be needed to build up HMO capabilities across the Nation for the general population, and more importantly, in areas where health care resources are scarce.

The Administration seeks authorities, therefore, to improve the distribution of health-care resources by providing operating grants for HMOs in medically underserved areas, to cover some portion of initial operating deficits. In scarcity areas now served by Neighborhood Health Centers, and similar models, the Administration would seek to have such facilities eventually become part of HMOs. . . .

The Administration's plan would also provide for prepayment to public and private HMOs for the care of Indians, as well as for manpower training in HMO settings. Moreover, while experience over the years indicates the HMOs provide high quality of care, the Administration would provide additional checks, as part of a general plan to review for quality of care and for the utilization of resources in all its new proposals. Accordingly, the Administration proposes establishing Professional Standards Review Organizations (PSRO) within the States to determine whether the quality of care meets professional standards, and whether resources are being used efficiently and effectively. They will review both health insurance and HMO contracts. Furthermore, to provide another checkpoint, and in line with the Administration's efforts to improve the planning capability of State and local governments, State and local planning agencies will review and comment on HMO proposals.

With regard to planning, the Administration is examining the interrelationships among State and areawide planning, Regional Medical Programs, health maintenance organizations, and Area Health Education Centers . . . to develop a more rational structure than exists today for the achievement of their overlapping objectives. The Administration is reviewing these alternatives with a view to their legislative base and the opportunities for consolidation.

Finally, the Administration would use the supremacy laws of the Constitution to pre-empt, in connection with Federal insurance programs, those legal barriers that limit the use of allied health personnel or the organizational form of HMOs. . . .

In the development of HMOs, as well as in the development of other community services that depend in part upon Federal resources, the Administration is committed to putting together "packages" of resources that are now to be found only in categorical, earmarked pigeonholes. That is, as an action complementing the proposed consolidation of grants, the Administration proposes to enable those seeking to achieve national purposes, but are now impeded and frustrated by the compartmentalization of Federal funding, to negotiate at a single point of access in the

> Government and with a single instrument for the combination of resources needed to achieve the purposes. The Administration recognizes that while specific problems have their advocates, at the community level the problems are interrelated. The resources that have been available for the specific problems must be reassembled for a realistic and holistic community program.

Health Manpower

The Administration's proposals seemed to come to grips with the problem of improving the distribution of health manpower – the most severe problem, in the minds of many.

A wholly innovative fund was proposed – $45 million for Health Manpower Educational Initiative Awards, about $40 million of which was to be used to create Area Health Education Centers (AHECs) in underserved parts of the country, both urban and rural. Based in part on recommendations of a Carnegie Commission Report[4], these centers would be affiliated with medical schools or university health sciences centers and would perform the dual function of education in the health disciplines and direct service to the surrounding community.

Beyond the expected accomplishments of HMOs, the Administration proposed several other major efforts to improve the utilization of health manpower. These included using present capacity to its utmost and expanding capacity to train physicians' assistants, especially those who could be delegated a significant percentage of the tasks of general practitioners, obstetricians, and pediatricians. Programs such as MEDEX, which draw upon the trained cadre of ex-military corpsmen, in conjunction with MEDIHC (an information program used to acquaint military corpsmen of opportunities for civilian health careers) were also to be expanded. Moreover, opportunities would be expanded for nurses to become pediatric nurse practitioners, nurse midwives, and public health nurses.

Additionally, special efforts would be made to bring inactive nurses back into the labor force. With nearly as many nurses inactive as active, experiences under several auspices have indicated that some nurses can be persuaded to undertake short retraining courses and then resume their nursing careers.

The Administration suggested that technological development also offers opportunities for improving the utilization of scarce manpower skills, while at the same time serving such other purposes as improving the quality of care and the distribution of services. Technology, the use of the patient as a participant in the process, and the use of nurses substituting for tasks previously performed by the physician, each can contribute to improving utilization.

The purpose for setting forth in considerable detail certain aspects of the strategy of the Administration was to focus on governmental thrusts for improving the nation's health. Throughout the *White Paper* the inferences are

clear – pluralism will continue, alternate solutions under Federal guidelines will be sought, regional efforts will be supported and the general population will be provided an opportunity for participation. Continuing education, retraining and the assumption of newer roles and responsibilities for health workers are among the measures supported.

THE 1972 MESSAGE

Then in March of 1972, the President's Message, "Toward A Better Health Care System," reviewed Congressional action and cited areas yet to receive action. The President said, in part:

> In 1971, I submitted to the Congress my new National Health Strategy which would produce the kind of health care Americans desire and deserve, at costs we all can afford.
>
> Since that time, a great national debate over health care has taken place. And both branches of the Congress have conducted searching examinations of our health needs, receiving and studying testimony from all segments of our society.

The President commented that Congressional actions on parts of his National Health Strategy were important first steps, but indicated that the bedrocks for a new national health care system for all the people were yet to be laid.

He suggested that the call was "to prompt but effective action to reform and reorganize health care practices, while simultaneously resisting the relentless inflation of health care costs." He said, "But far more than money is involved in our current health care crisis," and commented, "in health care as in so many other areas, the most expensive remedy is not necessarily the best one."

Clearly, the President said, the Nation must find a better answer to the deficiencies in our health-care system. Among the deficiencies he cited was prevention:

> While we emphasize preventive maintenance for our automobiles and appliances, we do not do the same for our bodies. The private health insurance system, good as it is, operates largely as standby emergency equipment, not coming into use until we are stricken and admitted to the most expensive facility, a hospital.

The remedy, the President suggested, would require the complementing efforts of the Federal government, of government at the state and local levels; of educational and health organizations and institutions of all kinds; of physicians and other medical personnel of all varieties; of private enterprise and of individual citizens. He went on:

> My National Health Strategy is designed to enlist all those creative talents into a truly national effort, coordinated but not regimented by four guiding principles:

Capitalizing on existing strengths: We resolve to preserve the best in our existing health care system, building upon those strong elements the new programs needed to correct existing deficiencies.

Equal access for all to health care: We must do all we can to end any racial, economic, social or geographical barriers which may prevent any citizen from obtaining adequate health protection.

Balanced supply and demand: It makes little sense to expand the demand for health care without also making certain that proper increases take place in the numbers of available physicians and other medical personnel, in hospitals and in other kinds of medical facilities.

Efficient organization: We must bring basic reorganizations to our health care system so that we can cease reinforcing inequities and relying on inefficiencies. The exact same system which has failed us in many cases in the past certainly will not be able to serve properly the increased demands of the future.

The President described major programs then awaiting Congressional action – the National Health Insurance Partnership Act; the Health Maintenance Organization Assistance Act, discussed earlier in the review of the *White Paper,* and labeled by the President as "a central feature of my National Health Strategy," and the Welfare Reform Bill, H.R. 1, which was characterized as "centerpiece legislation in the building of a National Health Strategy."

In sum, the Administration's overall health program called for actions on three levels: (1) improving protection against health-care costs; (2) improving the health-care system itself; and (3) working creatively on research and prevention efforts, to eradicate health menaces and to hold down the incidence of illnesses.

Regarding research and prevention, the President called for increased support for programs including: heart, cancer, alcoholism, drug abuse, sickle-cell disease, family-planning programs, venereal disease, consumer safety and nursing homes.

In regard to Health Education, he said,

> Aside from formal treatment programs, public and private, the general health of individuals depends very much on their own informed actions and practices.
>
> Last year, I proposed that a National Health Education Foundation be established to coordinate a nationwide program to alert people on ways in which they could protect their own health. Since that time, a number of public meetings have been held by a committee I established then to gather views on all aspects of health education. The report of this committee will be sent to me this year.*

*As of January 5, 1973, the Committee had not yet submitted its report to the President.

> The committee hopes to define more explicitly the Nation's need for health education programs and to determine ways of rallying all the resources of our society to meet this need.

A different approach to this aspect of consumer-health education was taken by Health Services and Mental Health Administration. Late in 1970 a contract had been let to an investigating team to develop a model or models for consumer-health-education demonstrations that could involve the expertise of the extension agent in education delivery systems and the knowledge base of health science center faculties and researchers.

The introduction and recommendations of the interim report of that team of investigators demands consideration here. That group reported[10] on February 26, 1971:

> . . . The greatest untapped manpower resource in this country is the individual consumer. Needed is an informed and "activated" citizen who can take his own initiative in personal health – approaching and utilizing the health care system properly for all services required in his personal health management program.
>
> An important and promising avenue for encouraging this appropriate, active response is through a broader program of consumer health education. For such a program to succeed, it must have an appropriate and high quality substantive base. This must be coupled with a pervasive delivery and access system that will assure widespread involvement and methods of effectively dealing with personal motivation.
>
> State universities and land grant colleges are unique in their commitment to public educational service. Problem solving, research and education for all people with the objective of informed consumer action are major missions, not merely by-products of regular academic programs or of individual faculty and student actions. Extension has been the main outreach of these institutions, developing an ability to reach large numbers of people effectively, using the university resources in solving problems. Extension has considerable expertise in packaging information and using multiple teaching techniques. In addition, feedback mechanisms exist to measure the effectiveness of programs and the satisfaction of people being served. Other strengths include the ability to identify problems and needs, organize groups, and work with and through existing local power structures.
>
> University Extension, both cooperative and general, has demonstrated its effectiveness in some areas which contribute to better health – including nutrition, sanitation, homemaking, and pest control. Extension has not been involved directly in issues of health care delivery or access to the system, because it was deemed that this was the exclusive domain of the formal health care delivery systems.
>
> Given the present "crisis" in health care, the need for a major effort directed at consumer health education, and the capability and capacity of University Extension, it is appropriate that health and Extension personnel now engage their efforts in a common

quest. Together these groups can reach out to include the patient, not as the object of, but as the action subject and participant in health care.

To that end, this proposal develops a model for designing programs in consumer health education which can be used by Extension divisions and health science centers of university land grant institutions to demonstrate the following:

1. Greater concern for personal health.
2. Positive steps to prevent illness occurrence; to prevent progression of minor illnesses; and to prevent dependency through rehabilitation following catastrophic illness.
3. A better understanding of the changing health delivery system and how to obtain access to it most effectively and efficiently.
4. How and what one may accomplish by self-help without or prior to calling on the formal health care delivery system.

The *Final Report* was submitted in June 1971[8].

Subsequent to the receipt of that report, a national briefing session was hosted by the National Association of State Universities and Land Grant Colleges where the report was discussed by Health Services and Mental Health Administration administrators and members of the investigating team. As evidence of the quickened interest in continuing education approaches to consumer health education, 76 individuals who represented 50 educational institutions and health agencies from 30 states met to discuss the issue. Following this national briefing, 23 extension-sponsored or extension-linked proposals for demonstrations were submitted to Health Services and Mental Health Administration. Each reflected a regional approach: A State or a portion of a state was the demonstration site for a consumer health education project. By March 1972 four demonstrations were supported. Each had as its ultimate objective the four points singled out in the interim reported above.*

*Dr. Richard Magraw, Deputy Executive Dean of The College of Medicine, The University of Illinois, has offered his views on education of the public so that it may make more appropriate use of personal health services[13]. "It is sometimes stated that a substantial [illegible] of the requests that patients make for personal health services are inappropriate and that a more medically sophisticated public could use the 'services' more efficiently, so that the apparent manpower shortages of the present would vanish. While undoubtedly an increase in efficiency would result from greater public knowledge of health and the system of medical care, it is unlikely that any higher level of sophistication in patients would materially diminish demands for care. In fact, added understanding of provisions for care might be expected to bring an offsetting increase in demand. There is, however, evidence that in some situations such increased demand would be reflected more in less expensive (in dollars and in manpower) out-of-hospital services and, perhaps, would bring a decline in hospital services. In any event, while programs are clearly needed to increase public ability of efficiently use personal health services, public education as a means of meeting medical service needs does not appear to be a sufficiently promising alternative to increases in physicians, dentists, nurses, etc."

What we have seen throughout the first section of this monograph can be summarized thus: The delivery of health care in all of its dimensions, the slow shift in philosophy from a treatment-centered approach to one of prevention and health maintenance, is underway; the realignment of roles and functions of health-care workers and manpower needs that may be met by new or retrained persons to deliver varieties of health services are subjects receiving attention at varying levels of authority and responsibility in the United States today; Senator Ribicoff's criticism that there is no national health policy is slowly being answered. However, the answers continue to reflect a "groping" at the national level. There is still a multiplicity of approaches to a goal that is still amorphous. A statement of national health policy serves as a desired end; the means must, of necessity, come from a variety of sources – regions, if you will.

SOME IMPLICATIONS OF REGIONALIZATION

Regionalization and health as used here come together as a short-hand designation of an approach* toward the national goal of high-quality, comprehensive, economical health services to all the American people. It is an approach charted between two extremes: on one hand, a monolithic nationalized "system," and, on the other hand, a chaotic, piecemeal "nonsystem."

The approach rests upon two premises: One is that it is possible for the American people through their Federal government to define a set of national goals – high-quality health care, the use of manpower that provides the best possible health service at the lowest possible costs, and a health-care delivery system that is available, accessible and acceptable to all the people regardless of their geographic, economic and social circumstances. The second premise is that an approach to these goals can be planned and implemented in such a way as to meet local needs through local resources, guided and aided by Federal policies.

Consequently the regional approach requires many and diverse activities that are voluntary, cooperative and flexible on the part of both the providers and the consumers of health services, as well as "third parties." Major activities are the Regional Medical Programs, which are particularly addressed to the providers of health services. The RMPs must work closely with other programs, both those that are also particularly addressed to the providers of health services, and those that are particularly addressed to the consumers of health services, particularly the Comprehensive Health Planning Programs. It

*Professor Edward A. Lentz, The Ohio State University, comments[11] that these efforts help enhance the integration of individual units into a system and that the approach also requires the establishment of formal communications within the region. Further, he adds that the approach often leads to exposure and inclusion of other interests in meeting complicated social problems. See also the plans for health services in a rural Wisconsin county[2].

must work closely also with other programs that do not fall neatly within the line between the providers-consumers poles. All such programs have been changing constantly and can be expected to continue to change constantly, both within themselves and in the relationships among them.

If the regional approach, defined in this way, is to be successful, there are certain requirements that remain constant amid all the changes that have occurred and will occur. One constant is that regions, like Tolstoy's unhappy families, are unlike each other. Therefore, study, planning and implementation must be specific to a region and not to *all* regions. One requirement is the intent continually to work and learn together. Derivative from this is the requirement of purposefully and systematically learning to work and learn together toward the goals of better health care, better use of manpower and better health-care delivery. This is the role of continuing education for all participants. In terms of the providers, it is continuing education for health manpower.

"Continuing education" for health manpower is those educational endeavors which are above and beyond those normally appropriate for qualification or entrance into a health profession or an occupation in health-related fields. "Continuing education" as used here includes also "training," which is sometimes distinguished from "continuing education." No such distinction is made herein, provided the "training" and the "continuing education" are above and beyond that appropriate for qualification or entry.

"Health manpower" includes the full horizontal and vertical spectra of personnel that provide health-care services to the American people: horizontally, from those engaged in preventive services, to those engaged in early detection, to acute- and long-term care; and vertically from the most highly skilled professionals to related occupational and vocational personnel, including voluntary aides. In the context of this discussion, it includes the people themselves, for it is at this level that prevention starts.

Continuing education both for health manpower and for the public is discussed in more detail elsewhere in this volune, but it must be clearly understood to be planned activities conducted in such a way that local needs are met through local or regional resources and are only guided or aided through the implementation of Federal policies.

WISCONSIN – AN ILLUSTRATION

One must ask how are things in health delivery and in continuing education being done at the regional level? How are they going? What new insights can be derived from further study?

The elements that previously have been discussed at the national level will now be discussed at the state and regional levels, since Wisconsin is a Region in the Regional Medical Programs. Specifically, these elements are the

Comprehensive Health Planning "A" and "B" Agencies, the Wisconsin Regional Medical Program, the Statewide University of Wisconsin-Extension System and the Wisconsin Task Force on Health Planning and Policy.

Wisconsin Comprehensive Health Planning

In 1966, then Governor Warren P. Knowles designated the Wisconsin State Board of Health (now the Division of Health of the Department of Health and Social Services) as the sole agency under Public Law 89-749 for administering or supervising the administration of the State's health-planning functions. A Bureau of Comprehensive Health Planning was authorized within the agency to acquire staff and develop a State program to "promote and assure the highest level of health attainable for every person, in an environment which contributes positively to healthful, individual and family living." To accomplish this purpose it was desirable to strengthen the leadership and capacities of State health agencies to achieve close intergovernmental collaboration, and to promote official and voluntary efforts and the participation of individuals and organizations in order to plan at every level of government for comprehensive health services, health manpower and health facilities.

Interlocking memberships of governing and advisory boards were appointed to assure coordination, and involvement with other agencies of State government performing comprehensive health-planning functions. These included agencies such as the Division of Vocational Rehabilitation, Division of Mental Hygiene and Mental Retardation, and Wisconsin Regional Medical Program under P.L. 89-239; State government planning functions of the State Department of Administration, the Bureau for Handicapped Children, the Department of Natural Resources, and the Coordinating Committee for Higher Education (because of its training responsibilities for health personnel); and the health aspects of Public Law 89-749 (Demonstration Cities and Metropolitan Development Act of 1966).

The State Department of Administration contains a Bureau of State Planning and Budget, which is responsible for stimulating and coordinating the development of long-range, comprehensive planning by the State's agencies. The Governor's office is represented by this Bureau on Comprehensive Planning groups in all State agencies and also acts as liaison between such agencies.

A State Advisory Council was appointed by the Governor to advise the designated State health agency in carrying out its health planning functions under the State program. The Council, in compliance with the Federal act, included representatives of State and local agencies, nongovernmental organizations and groups concerned with health, and a majority of the Council consisted of representatives of consumers of health services. The Director of the Bureau of Comprehensive Health Planning of the Division of

Health of the Department of Health and Social Services served as Executive Secretary to the Advisory Council.

The Advisory Council approved the creation of six subcommittees, to obtain technical consultation with respect to the following topics: study of health facilities; study of health manpower; study of environmental health; study of health data; study of organization and administration of local public health services; and study of health services and needs personal care. The Bureau of Comprehensive Health Planning staff of the Division of Health provided secretarial services, administration channels for communication and names of members for the technical subcommittees, the latter appointed by the Bureau Director.

The six technical subcommittees totaled 117 individuals, an average of 20 members per committee. The appointments were made on the basis of the special expertise and contribution the individuals could make towards the charge assigned to each committee. Each technical subcommittee also had four or five members from the Advisory Council on Comprehensive Health Planning to provide the type of communication desirabie between the Council as a whole and the six separate committees.

In addition to the activities of the technical subcommittees referred to, the Bureau of Comprehensive Health Planning continued to pursue its major goal of blanketing the entire state with areawide comprehensive health planning agencies, due to the extremely important role such local agencies have in the "Partnership for Health" program. All eight of the areawide health planning agencies had been approved and Federally funded by May 1972, as previously noted.

As one example of its work, the Bureau of Comprehensive Health Planning supported surveys performed by the State Divison of Health and its Bureau of Health Statistics. This study was concerned with the "Wisconsin Emergency Ambulance Survey," released in two separate documents. Report "A" was an inventory of the ambulance services in Wisconsin; Report "B", a final report, contained findings, conclusions and recommendations. Through the study, it became apparent that hospital emergency rooms, ambulance services and their existing communication systems were not fully capable of responding to the increasing demands being made on them. Because information on Wisconsin emergency facilities from existing sources was neither current nor complete, it was necessary that more extensive data be gathered and analyzed before any comprehensive plan for emergency medical services could be formulated. The first step in the process was one of several surveys alluded to here, namely, the "Survey of Emergency Services in Hospitals" followed by a survey of emergency ambulance operators in Wisconsin and a study of the emergency medical communication system in existence in the State. The results of this survey were used extensively in a WRMP project application for Emergency Medical Services that received approval; the project will be discussed in the next section.

Wisconsin Regional Medical Program

In 1966 the Wisconsin Regional Medical Program was organized by a group of Wisconsin business leaders and educators. It was the fifth Regional Medical Program approved following enactment of Public Law 89-239. Initially concerned with categorical emphasis on heart, cancer and stroke, WRMP now includes kidney and related diseases as well as specialized care with the enactment of Public Law 91-515. It includes also the evolving concern with comprehensive health-care delivery. It is a private, nonprofit corporation whose comprehensive goal is to improve health-care delivery through cooperative and collaborative efforts among health-care agencies and organizations.

The mission of Regional Medical Programs is to "increase the availability of (health) care, enhance the quality (of health care) and to moderate (care) costs – making the organization of services and the delivery of care more efficient." To improve health care of Wisconsin residents, consistent with the mission of all Regional Medical Programs, the Wisconsin RMP adopted the following objectives:

1. Find ways of utilizing health and allied health personnel more efficiently while maintaining quality of care.
2. Seek methods that reduce health-care costs while maintaining quality of care.
3. Identify and implement new methods of quality control to maintain and improve present standards of medical practice.
4. Provide ways for prevention and early detection of disease and the maintenance of health.
5. Encourage the use of newly developed health-care technology at all levels of care.
6. Improve the availability of the health care or the access to health care for all Wisconsin residents.
7. Support collaborating agencies in improving the efficiency and effectiveness in the delivery of health care.

Heart disease, cancer, stroke and other major health problems command the special interest of the Wisconsin RMP.

Wisconsin RMP is representative of private and public institutions, health providers and consumers working together in the development of projects and programs that benefit all those who reside in the Wisconsin Region. Through the representation of Wisconsin RMP's Regional Advisory Group* and other committees, providers and consumers have directly available to them staff

*Specifically, the membership of the Regional Advisory Group includes practicing physicians; medical center officials; hospital administrators; representatives from appropriate medicaly societies, other health professions, voluntary health agencies, and other organizations, institutions, and agencies concerned with activities of the kind to be carried on under the programs; and members of the public. The Director of Wisconsin's Bureau of Comprehens[illegible]ealth Planning has been a member since the inception.

resources and sources of funds to permit the development of new concepts in health-care delivery. Wisconsin RMP involves key health agencies and individuals through its committee structure and through the development and operation of programs, projects and other activities.

The Regional Advisory Group is the decision-making body of the Wisconsin RMP. Their duties include specifying areas for program development, approving project proposals, and setting priorities for the use of Wisconsin RMP funds. In contrast to many Federally funded programs, the Wisconsin RMP determines how best to use its funds consistent with the health needs in Wisconsin. The Regional Advisory Group must approve any proposed use of Wisconsin RMP funds.

To implement its progress, Wisconsin RMP draws heavily on assistance from existing health agencies and their resources. In those instances where more than one agency or organization has the needed capabilities or resources, the cooperation of these groups is sought before a program or project is initiated. The philosophy behind joint efforts is to minimize duplication wherever possible, and whenever possible to involve interested agencies in the planning and implementation of projects, and to increase the likelihood of continuing support after Wisconsin RMP funds expire.

The focus of Wisconsin RMP programs is to develop, demonstrate, and evaluate the impact of existing, new, and potential approaches for an improved delivery of health care. As a result, Wisconsin RMP support is limited in time, geared to terminate when the development, demonstration and evaluation is completed. Time-limited support permits periodic "reinvestment" of Wisconsin RMP funds and requires that project sponsors identify permanent services of support.

As examples of regional cooperation, first, WRMP, at the request of the Comprehensive Health Planning Agency for Southeast Wisconsin, evaluated the need for a 185-bed, $18.4 million expansion program of a local hospital. Following review and evaluation,* the decision to approve expansion at an 87 percent-level was made by the "B" Agency.

Another example indicating the reciprocal relationships of Comprehensive Health Planning and Wisconsin Regional Medical Program is found in reviewing the history of the $1.2 million project "Emergency Medical Service." Based on the study materials developed through Comprehensive

*As an example of the problems in evaluation of need and determination of consensus, the General Accounting Office has reported some factors that inhibit sharing hospital facilities and services[5]. These include: Physicians may oppose sharing because of the convenience and prestige of having a wide range of services available for their patients at particular hospitals and some physicians may fear that they will not be appointed to the merged staff; the community may not be willing to accept the closing of a service; the hospital trustees may fear that loss of sole control of the service will affect the autonomy of the hospital board and the prestige of the hospital; and many hospitals will operate an inefficient service as long as they are reimbursed their costs, which is the general formula for reimbursement.

Health Planning support (cited above) and responding to statewide needs, a proposal to establish a comprehensive, systemized network of comprehensive communications and personnel training which is expected to reduce both the mortality and morbidity of acute medical and surgical emergencies in Wisconsin.

The program is expected to:

1. Establish localized volunteer councils and coordinate local resources to improve emergency services on a regional basis.
2. Initiate, conduct and expand training programs for onsite emergency medical-care personnel and hospital emergency-department personnel.
3. Devise a state resource plan to categorize all Wisconsin hospitals in terms of levels of service.
4. Improve utilization and effectiveness of urban hospital emergency departments.
5. Assist the Division of Highway Safety and the Division of Health in completing a statewide microwave communication system to interconnect ambulance vehicles, dispatchers, hospitals and other emergency services.
6. Coordinate highway safety programs which help link hospital communications equipment and emergency vehicles with the EMS system.
7. Train EMS dispatchers to assist in routing emergency vehicles to appropriate emergency facilities.
8. Provide information to the public making them aware of the existence of the emergency care system.
9. Aid in securing legislation which would establish standards for emergency medical service manpower needs and facilities.
10. Coordinate the identification of Wisconsin highways designating the location of hospital emergency services through the cooperation of the Wisconsin Department of Transportation.
11. Design and develop emergency vehicles to meet emergency needs in urban areas.
12. Assist comprehensive health planning agencies in helping to provide state as well as community emergency planning needs.

The communication and coordination of public and private agencies and educational institutions in developing and organizing this regionally organized health-improvement program is shown by listing those directly involved. They are: Wisconsin Hospital Association; State of Wisconsin – Division of Health and the Bureau of Comprehensive Health Planning; Medical Society of Wisconsin; State of Wisconsin – Division of Highway Safety; Comprehensive Health Planning Agency for Southeastern Wisconsin, Milwaukee; Health Planning Council, Madison; Lake Winnebago Areawide Comprehensive Health Planning Council, Fond du Lac; Northeastern Wisconsin Health Planning Council, Green Bay; North Central Area Health Planning Association, Merrill; Northwest Areawide Comprehensive Health Planning Organization, Superior;

West Central Wisconsin Health Planning Council, Menomonie; Western Wisconsin Health Planning Organization, La Crosse.

Other participating organizations are: American College of Surgeons; Employers Insurance of Wausau; Forward Communications, Inc.; Hospital Council of Greater Milwaukee Area; Medical Center of Southeastern Wisconsin; Medical College of Wisconsin; Medical Society of Milwaukee County; Milwaukee County Institutions and Departments; Milwaukee County Office of Emergency Government; University of Wisconsin, School of Nursing, Madison; State of Wisconsin – Department of Transportation; State of Wisconsin Governor's Health Policy and Program Council; Tri-State Ambulance Service, Inc.; University Hospitals, Center for Health Sciences; University of Wisconsin Instrumentation Systems Center; University of Wisconsin Medical School; Wisconsin State Fire Chiefs Association; and University of Wisconsin-Extension.

University of Wisconsin-Extension

To trace the history of Extension activities, one goes back to 1885 and Wisconsin's first identified programs – the Farmers Institutes and the short course in Agriculture. The University Extension Division began as an Extension office established in the School of Education in 1891. In 1906, it was elevated to independent status and officially identified as the University Extension Division by action of the Board of Regents in 1906[1].

Fully two years before the passage of the Smith-Lever Act, the first County Extension agent was employed in February 1912. The unique and effective partnership among county, State and Federal governments, known as the Cooperative Extension Service, came into being following Congressional enactment of the Smith-Lever Act of 1914.

In July 1966 the University of Wisconsin Regents merged continuing education and service components into a single statewide University Extension. Included were not only the University Extension Division and Cooperative Extension Service, but also Radio and Television, and the Geological and Natural History Survey. The current mission of the merged group, as defined by the Wisconsin Legislature "shall be to assure, independently and in cooperation with the University campuses throughout the State, a coordinated program to extend knowledge to the part-time student through a problem-analysis and problem-solving approach that applies knowledge, expertise and research of the University to the needs of society."

By October of 1966, Dean Harold Montross asked the chairmen of the health-related departments (Pharmacy, Nursing and Medicine) in his division to "...examine the general area of health activities and to recommend programming activities and areas of concern."[3]

By January 1967 the three chairmen had been augmented (for a health-programs task force) by representatives from social work, governmental affairs, food science, health education, and management. At the first

session of the task force. Dean Montross charged the group to "... outline program needs in this [health] area, recommend desirable relationship to the many other agencies and organizations in the field and consider possible program funding."

The task of the group as described by the dean was fourfold: (1) to survey the field of health activities in order to become informed about what groups, agencies, and institutions were involved in providing health programs to the people of Wisconsin; (2) to identify the major problems involved in planning, staffing, and delivering health care in Wisconsin and in the United States as a whole; (3) to study the role of University Extension in the health-care field; and (4) to recommend means by which University Extension could use its resources to contribute to the solution of problems of health care.

Implicit in the charge to the group was the dean's keen concern for an increase in the channels of communication across departmental and divisional lines in the newly reorganized University Extension. Thus the group appointed was interdisciplinary so as "... not only to review together the continuing education and service aspects of University Extension health programs but also to discover possibilities for cooperation among their respective disciplines."

On July 1, 1967 the task force reported to Dean Montross and made its recommendations following analysis of a series of internally and externally generated questions developed after receiving testimony given by agencies and by interested health professionals. Two points from that report are worth citing here: First, the group suggested that the dean "... form a new group that would continue to communicate, study, and program in health areas, and to carry forward certain of the recommendations herein. Innovation in programming and in cooperation, as well as the development of research proposals, are recommended as possible courses of action for the new group to consider." Second, the task force prepared the mission statement[6]:

> To bring to bear on the health problems and interests of the citizens of the state all the available knowledge, experience, teaching, demonstration and research which exist within University Extension; constantly to strive to improve and expand Extension capacities in health-related areas; to serve as a channel through which the health-related resources of the entire University may be made available to all state citizens and groups; to respond to specific requests for service from within the state; to initiate programs and activities which, in the considered judgment of the initiators, may meet unexpressed needs and interests; and finally, to make Extension resources and capacities available to citizens of this country and the world.

The major areas of emphasis of the total Health Sciences Unit in discharging its mission through its department and program units are: (1) continuing education for the professional; (2) work with the institutions of health care; (3) work with persons supportive to health care; (4) community health – both physical and environmental.

The underlining concern with the areas of emphasis above is that of working to interest the professions as professions – not as individual practitioners in their respective callings – in broad studies of pressing social issues in health care with the view of effective useful change through extension activities.

To indicate the symbiotic and collaborative* relationships of the Health Sciences Unit with health groups in the State, a few examples of faculty-held positions follow: Chairman, Council on Continuing Education, WRMP; Chairman, Review and Evaluation Committee, WRMP; Members, Regional Advisory Group, WRMP; Member, Emergency Care, WRMP; Member, Board of Directors, Wisconsin Heart Association; Consultant, Division of Mental Hygiene, Department of Health and Social Services; Member, Wisconsin Nursing Home Administrator Examining Board; Member, Board of Directors, Wisconsin Nurses Association; Chairman, Education and Internship Committee, Wisconsin Pharmaceutical Association; Member, Wisconsin Pharmacy Internship Board; Member, Health Manpower Committee, Bureau of Comprehensive Health Planning; and Members, various committees of Comprehensive Health Planning "B" Agencies.

Another element of regional involvement through the communications mechanism of the Health Sciences Unit is found in the relationship of faculty to health groups. At routine meetings of the faculty, they are joined, for planning and program purposes, by the Director of the Division of Health of the Department of Health and Social Services, the Manpower and Training Director of the Division of Mental Hygiene of the Department of Health and Social Services, the Continuing Education Coordinator of the WRMP, and the Executive Director of the Wisconsin Hospital Association. Other state group representatives not specifically included are mailed copies of minutes on appropriate occasions.

Clearing up the existing confusion about appropriate roles among Federal, State and local governments and for the public and private sectors in the health-care system was a major concern of the State of Wisconsin Task Force on Health Planning and Policy during its almost two year existence. What are appropriate roles in a regionalized approach to health delivery in its many aspects including continuing education?

In the next section, we consider Wisconsin's concern for health planning and policy in the sense that one state can reflect a model for, or an example of, regionalization that is worth special attention.

*The Wisconsin Regional Medical Program, Inc., in conjunction with the Marquette School of Medicine, Inc. (now the Medical College of Wisconsin), played an important role in obtaining a 1970 OEO award of $432,000 for the Cream City Neighborhood Project in Milwaukee to assist a group of residents from the inner-city area of Milwaukee in establishing a neighborhood medical facility. Wisconsin Regional Medical Program, Inc., with consultation from Comprehensive Health Planning, provided staff for the proposal drafting and funded some of the planning. University of Wisconsin-Extension's Health Sciences Unit now has a joint faculty relationship with the training supervisor for the preparation of community health workers in the project.

The Health Planning Task Force

On May 18, 1971, Patrick J. Lucey, Governor, delivered a special message to the Legislature on health and health care in Wisconsin[12]. In that message he announced the creation of a Health Planning and Policy Task Force. He extended invitations to approximately 50 citizens (health-care professionals, businessmen, educators, association representatives, consumers, labor leaders, and others designated by the Governor to serve because of their particular interest in health care) without regard to political affiliation to join in that task force. Governor Lucey charged the Task Force with the responsibility of developing a comprehensive health plan and policy for the State of Wisconsin. He said, "I want this plan to be so outstanding that it can serve as a model for the nation."

He instructed the Task Force to ascertain the health needs of Wisconsin citizens and to design a comprehensive system which would provide the services health-consumers require. The Task Force was charged with developing realistic health and health-service goals. It was asked to compile a health plan, designate health priorities, recommend a legislative program and to suggest any administrative reorganization necessary to implement its program. Further, the Task Force was to identify the responsibility for government, the providers, the educational system and the consumers. He asked the Task Force for its recommendation on the financing of health care, utilizing both public and private capital. And, finally he asked for early identification of those areas that would demand priority attention. The Task Force and its staff were given eighteen months from July 1, 1971, to complete its undertaking.

At the same time Governor Lucey created a Health Policy and Program Council. This Council is to combine into one, more efficient, body five existing councils charged with administering Federally funded programs: Comprehensive Health Planning, Developmental Disabilities, Hospital Construction, Mental Health Centers Construction, and Facilities for the Mentally Retarded. The intent of this action, according to Governor Lucey, was to overcome serious inefficiencies fostered by the Federal government in its separate program requirements over the past two decades.

The work of the Task Force since its inception was to determine the problem areas in health and health delivery in Wisconsin. As a consequence, several early meetings of the Task Force itself were used to develop problem areas around which to focus. Additionally, 17 public hearings conducted by Task Force members and staff were held in locations all around the State of Wisconsin.* Additional activities of the Task Force involved subgroup meetings and an extensive and exhaustive literature search.

*The President's Committee on Health Education developed a similar hearings program. Sessions were held in varying regions of the United States to get a sense of the public's mood and feelings on health in all of its aspects.

The Task Force was divided (based upon the identified problems and the input from consumers and users gained in public testimony around the State) into eight work groups or subcommittees: (1) public policy for health; (2) health planning; (3) personal health services; (4) public and environmental health; (5) financing; (6) education and training of health workers; (7) consumer health education; and (8) research and development.

It becomes obvious by the listing of the work groups that the problems delineated by citizens and discussed by Task Force members have, in fact, covered the entire scope of health problem areas that are of concern to Wisconsin citizens as well as those of the nation at large.

The Task Force determined that confusion about appropriate roles had frustrated discussion about health care services[17]. This confusion had a number of sources:

> The tendency to look to the Federal government for the solution to all health-care problems, many of which are clearly local and must be solved locally.
>
> The diffuse and uncoordinated governmental involvement in health care, especially the limited involvement of State government.
>
> The view that governmental action, other than the provision of funds, is inappropriate "intervention" into private enterprise.

Task Force members agreed that most people now consider health care to be so important in their personal and community lives that they think of it as a right comparable to the right of education, and found that it is a right which some people cannot exercise. Not surprisingly, the Task Force noted that "government" is becoming involved because it has a responsibility to all citizens. And the Task Force noted that additional tensions resulted because the private sector reacted strongly to governmental involvement as an "invasion of its privacy and freedom of choice." However, since the enactment of Medicare, Medicaid and other more limited Federal programs, it was clear that government involvement has increased and is in fact changing health care. Task Force members found that in many ways, Federal action had precipitated the health-care "crisis," but agreed that, if the system did not function adequately for all citizens, greater governmental involvement in health care was inevitable. The group suggested, however, that more *effective* and *responsible* government involvement would be necessary.

In considering Federal-State relations and funding for health care, the Task Force noted that reforms require money. Also required would be better management to increase efficiency. It was noted that "the Federal government has the money, but it lacks the authority or the capability to manage health care." Further, "... the State has the authority to manage and regulate health care, but it lacks the money to manage sound programs."

The potential of regionalization was treated in detail as the Task Force sought to clarify roles for the State and Federal governments in health care.

In effect, the discussion turned on questions like those considered nearly 200 years ago when a small group met in Independence Hall in Philadelphia to set forth the powers of the central government and those of the several states as they scrapped the Articles of Confederation and prepared the Constitution of the United States.

From the Task Force came these statements setting forth the separate and mutual responsibilities of central and regional (state) government:

> The State has constitutionally derived powers to mandate services and to assure their quality. The Federal government does not have these powers, but has sought to mandate and regulate services indirectly by providing funds in return for the performance of specific activities and the provision of specific services.
>
> The Federal government, however, does not have the authority to force its funds on those who do not wish to receive them at the State or local level. The wide variation in the Medicaid program among States is an example of the limits of Federal influence. It is also an example of how States not only have failed to fulfill their responsibilities, but how they can frustrate Federal attempts to make health care more equitably available.
>
> There can be little question that for the foreseeable future, the Federal government, through its control of public funds, will establish broad national policies and goals for health care. Grants-in-aid under Federal programs will address national priorities. Federal funds will also be required for programs of a size that only the Federal government can feasibly support and for programs that are national in scope and require uniformity in their operation.
>
> State government must play an essentially different role – a role of management to bring order and direction to the health-care system at the State level. More effective State management is needed to make the best use of all health-care funds – Federal and State, public and private. To make the health-care system work well, State management must achieve:
>
> A clear up-to-date State health policy and plan.
>
> A well ordered regulatory function which gives direction to providers of care, through both incentives and controls.
>
> Means to mandate necessary services and prevent the development of unnecessary or duplicate services.
>
> Effective use of Federal and State grant-in-aid resources to assure the provision of services in a publicly accountable manner at a level as close to the citizens and their needs as possible.
>
> Effective representation of State needs and priorities in Washington.
>
> The provision of adequate technical assistance to areawide and local planning agencies and providers to enable them to participate in the formulation of State policy and to make best use of all resources available to them.

The public and private sectors of the health-care system cannot continue to relate to each other as they have in the past. Limited cooperation with substantial distrust is not sufficient. The State must determine which of its constitutional responsibilities can be properly shared with the private sector.

What specific roles should the private sector play?

How can public accountability be guaranteed where private sector involvement is primary?

Definition and supervision of the appropriate publicly accountable actions of health-care institutions, professional organizations and private providers of care are functions of health-care regulation.

Health-care regulation defined this way logically becomes the highest priority for State action for a number of reasons. It is an area consistent with State constitutional powers and authority. It is recognized by many providers and consumers as necessary. It is the most important arena within which to work out the appropriate relationship between the public and private sectors.

Licensing of institutions and control of the quality of health care cannot be effective without the expertise and full cooperation of the professional providers of care. Rate review and certification of need can reach their potential as positive, directive tools only with the full participation of the providers of care. The regulatory system must not merely limit and constrain the providers of care; rather it should underlie a system of management which encourages the provision of needed health services to all citizens by professional providers of care who accept responsibility for self-discipline in the public interest.

It is essential that State government have the mechanisms to determine who is responsible for resolving recognized health problems. Neglected responsibilities and programs must be pinpointed. Responsibility for short-term projects and demonstrations must be assigned. Important new findings must be put into action. An ongoing assessment of the performance of the health system must guide the expenditure of State money and the use of Federal funds in health programs within the State.

The Health Policy and Program Council must provide a permanent arena for health-policy discussion at the State level. It must become:

A means for the private sector to influence public policy.

A tie between State health planning and planning by areawide and local agencies. An independent arena within which the responsibilities and division of labor among State agencies can be refined.

Both regulation and management require a well-developed and integrated State planning program. The State Office of Comprehensive Health Planning and the Council must continually define the priority of health-care objectives for State government. Areawide health-planning agencies must assess areawide health needs and have the capacity to work toward the State and

areawide objectives. The State must set standards, provide technical and resource assistance as required and provide areawide agencies opportunities to influence State health policy and resource allocation.

The Task Force has concluded not only that the State *does* have a responsibility in facing the mounting health-care crisis, but that its role is crucial. This role is now underdeveloped, but can be strengthened with firm and assertive action by the Governor, the Legislature and the citizens of the State.

In November 1972 the Final Report of the Task Force was sent to Governor Lucey. The findings and recommendations, in addition to the *Final Report*, are available in two additional publications. These are "Health Care for Wisconsin – A Summary of the Governor's Health Planning and Policy Task Force for Wisconsin Citizens," and "The Research and Information Supplement," which includes full texts of the working papers, other background documents and a selected bibliography.

Taken together, these three publications represent a working model, or at least, a good example, of how a State can organize and plan its resources for improvement in health-care delivery. Key to the plan is the major statement adopted by the Task Force, "Guidelines for an Acceptable Health Care System." The findings and recommendations follow the work effort of the eight workgroups listed earlier, but range broadly in keeping with the Guidelines to areas of general concern to the State both as a region and as a central resource for its own regions.

There is much in the three volumes to be cited and to be considered for purposes of example. Selection, however, must be made to illustrate the point of regionalized program efforts. Specific recommendations in the area of planning (CHP), those that relate to regional activities with providers (WRMP) and those that relate to improvement in health practices through continuing education activities of health workers and the public are used to indicate the State efforts in health policy, planning and strategy.

Recommendations of CHP

That the Governor establish a permanent Health Policy and Program Council to formulate and communicate health-policy recommendations; direct the development of an annual state health plan; and coordinate and review all publicly funded health programs.

That the Legislature enact legislation establishing a goal of fully developed state and areawide health planning capabilities of 1975.

That the Legislature establish a State Office of Comprehensive Health Planning as the sole agency responsible for the administration of and technical assistance to the Comprehensive Health Planning program; and that the Legislature establish a single areawide comprehensive health-planning agency within each of the State's administrative districts.

Recommendations on WRMP

That the Wisconsin Regional Medical Program develop, implement, and evaluate pilot area health education systems in selected areas of the state in conjunction with appropriate state and areawide bodies; and that WRMP assist other areas of the state in exploring feasible development of area health education systems.

That WRMP continue to sponsor and support the development of pilot programs in quality-surveillance methodology at both state and local levels.

That WRMP actively collaborate to establish internal quality-maintenance procedures which are acceptable.

Recommendations on Continuing Education

That the University of Wisconsin-Extension collaborate to form regional Continuing Education Committees; and establish a central information service for all continuing education programs for health workers within the state.

That the Health Policy and Program Council establish an evaluation program to measure the impact of continuing education programs for health workers on the health workers themselves and the public they serve.

Recommendations on Informing the Public

That the Health Policy and Program Council establish a State Health Education Policy Committee to provide leadership at the state level for all consumer health education efforts, including school health education; and that areawide Health Education Committees be established by each of the eight areawide comprehensive health planning agencies to coordinate all areawide and local programs in health education, including school health education.

That the University of Wisconsin System provide training for professionals in the field of environmental health as well as educate the public about environmental effects on health.

That the State Department of Health and Social Services develop an effective consumer education program explaining the benefits and methods of applying for Medicaid so that those eligible to receive Medicaid benefits can readily determine their eligibility and obtain the preventive and medical services available in the community.

CONCLUSION

This monograph has considered the dimensions of an evolving national health policy. It has pointed out the relationships that now or should exist between Federal and state or regional program thrusts, and has suggested that continuing education efforts are an integral component in the process of providing health care.

Regional approaches to health care service improvement can be made and continuing education can serve as one component in the improvement process. These efforts and this improvement can come over time only as priorities are reordered and the process of political decision-making lends strength to the concept that health is a high-priority consideration at all levels of government and merits the support of all the people. If health merits a high-priority governmental consideration, then sooner or later regional health-service delivery and continuing-education efforts must rank high in planning, support and execution. If health merits the support of the people, steps aimed at education, prevention or health-maintenance as well as other personal health measures must be taken. Taken together, the results may improve health-care delivery.

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